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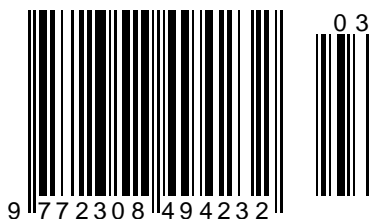
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Issue

Article



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## BUSINESS SECTOR AND THE MODERN INTERNATIONAL MARKET

**Abstract:** Under the conditions of the internationalization of household activities, the market entity is forced to use international marketing methods; otherwise it will lose its positions and may be bankrupted.

Through international marketing, the company reveals the requirements of buyers in the foreign market, which leads to the fact that the relationship between the buyer and the seller of the goods is long-term and systematically repeated.

We think that in the conditions of the globalization of the economy, an increasingly decisive role is assigned to the directions and trends of the development of international trade, which in turn has a great impact on the development of individual countries as well as the world economy and business.

**Key words:** marketing, company, overseas, technology, bazaar, seller.

**Language:** English

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### Introduction

The business sector plays an important role in the development of Georgia's sustainable economy, especially small and medium-sized businesses, because in the country, there is no other sector linked to it, the creation of jobs depends primarily on business, therefore the employment of a large part of Georgia's population, which in turn significantly contributes to exports, innovations, modern entrepreneurial culture to create, and at the same time, it plays a special role in raising the level of the country's well-being. Modern international business and trade is a single global economic system that involves the population, states, integrative unions, insurance companies, transnational companies, banks, etc.

International business represents one of the most dynamically developing areas of economic life among countries. Globalization is characteristic of modern trends in economic and business development. It means the strengthening of the openness and interdependence of countries, regions and human associations worldwide. Even the process is of a protective nature and therefore, the national borders are being dissolved in all the relations.

Modern business is characterized by freedom in innovation, solutions, non-standardization. which means more responsibility and organization. Modern business means competition everywhere and in everything. it is the high competition that forces companies to make quick decisions and take a profitable position in the market, one of the necessary conditions for the successful implementation of modern business is marketing.

For successful enterprises, marketing allows the creation of demand for the product, maintaining it for as long as possible and thus making a profit.

Marketing is quite a difficult job, even more difficult is global marketing, which learns not only local markets, but also the characteristics of different countries' markets.

The concept of "international marketing" implies that several other markets have started to play a crucial role in developing the marketing concept for the given enterprise.

According to the modern concept of marketing, the enterprise should consider the study of consumer demand, the search for buyers and, based on this, all its production processes as the initial stage of its commercial business.

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International marketing is considered as logical thinking, which considers the international market as a source of profit based on systematized plans. One of the ways to maximize profits is to minimize costs. For example: **General Motors** (USA) moved its factories to Mexico in order to reduce production costs, since as marketing studies have shown, the labor of Mexican workers is no less than 12 times cheaper than that of the USA.

International marketing expresses the scale of the company's business outside the country. The company's entry into international marketing and its further development require the establishment and expansion of contacts with customers, suppliers, and competitors who have different cultures. Therefore, before entering the foreign market, the company must study the country's target markets.

The attractiveness of the market of this or that country and the interest in it are mainly determined by two characteristics - the agricultural structure and the nature of the distribution of income.

Entering the international market and expanding the economic relations of foreign countries is caused by the various requirements of enterprises and the reasons for their origin, namely:

- 1) domestic market development (базрис сахонлит гажереба, increasing the pressure of competitors), under which conditions it is advantageous to invest capital in foreign countries
- 2) improving the load of existing and additionally used capacities
- 3) due to the limitations of local resources, the need to buy in other countries
- 4) removal of trade barriers by individual countries
- 5) State sovereignty
- 6) Exchange rate fluctuation compensation, through partial production and key organization in the respective countries
- 7) Gaining access to know-how - eg: in partnership with foreign companies
- 8) overall risk reduction

For successful work in international business, it is necessary not only to have a certain ability, something innovative, but also to use constantly updated information and effective use, which is collected when conducting marketing studies. Marketing decisions are prepared and adopted based on relevant information on the markets.

Modern business is practically completely dependent on the information space. This is necessary for statistical indicators, operational data management, marketing research and more.

In modern international marketing, it is market research that holds the central place. whose data is the basis for the development of the strategy and tactics of the firm's foreign market exit, its correct production and pricing policy. Almost 90% of all industrial companies and service sector firms regularly carry out

market research in the USA, and approximately 75% in Germany and Great Britain. The main principles of foreign market research are: targeting, complex approach, systematicity, diversity of information sources, science.

Before entering the international market, the company must consider the following issues:

- If the company does not enter the international market at all, what tasks and what risks can be faced by the company.
- If it was decided to exit, then which country is on the market? What products should be taken out?
- How, by means of means, will this market exit and position?
- Who will be the target segment?
- How to organize the process of developing and implementing international marketing programs in your company (firm)?

After the firm has studied and decided to enter the foreign market, the need to make other marketing decisions is on the agenda, for which they use the so-called "marketing mix". "MARKETING-MIX" combines 4 P - product, promotion, price and place, to which one more P - perception can be added.

Individual countries differ dramatically from each other in their political-legal structure, level of economic development, technical standards, distribution systems, etc.

The peculiarity of international marketing is also expressed in the fact that the fierce competition here places great demands on the quality of goods, advertising, services and others. In addition, the circumstance that the international market represents a peculiar conglomerate, a set of national markets, which is characterized by both common and differentiating signs, should be taken into account. The competitiveness of the company's products can only be correctly determined based on comparison with foreign analogues. In today's world, competition is based most of all on technological innovations. In one article, Professor Leveti of the University of Harvard mentions: "Great power drives the world to international agreement, and this power is technology."

Now, for example, you will introduce an international company that, through marketing information, decided to enter the Georgian market and operate.

The German company "Arvato" is a leading international service provider company. More than 70,000 employees of "Arvato" advise business clients in up to 40 countries on innovative solutions that include various business processes related to the field of integrated services. These areas are digital marketing, CRM, SCM and IT solutions. Bertelsmann SE & Co. KGaA's subsidiary company. According to foreign investors, Georgia has unusual

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opportunities for business introduction and development. Based on 2 years of preliminary research, the company's management decided to open the office in Georgia and continue its activities here. According to investors, Georgia has good investment conditions. Before coming to Georgia, they did a lot of research, worked with initiative groups, discussed existing marketing with the German business association. The company's representative particularly emphasizes the anti-corruption environment and the

ease of starting business procedures, he also talks about highly qualified human resources.

Finally, based on the information presented, we can conclude that for a company that is involved in modern international business and through marketing tries to take a solid position in the market of this or that country and be marketable, not only before putting the product on the market should it try to apply different marketing methods and techniques to achieve success, but must be used continuously in the market in parallel with the activity.

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Article



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## REFERENCE DATA OF PRESSURE DISTRIBUTION ON THE SURFACES OF AIRFOILS HAVING THE NAMES BEGINNING WITH THE LETTER R

**Abstract:** The results of the computer calculation of air flow around the airfoils having the names beginning with the letter R are presented in the article. The contours of pressure distribution on the surfaces of the airfoils at angles of attack of 0, 15 and -15 degrees in conditions of the subsonic airplane flight speed were obtained.

**Key words:** airfoil, angle of attack, pressure, surface.

**Language:** English

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### Introduction

Creating reference materials that determine the most accurate pressure distribution on the airfoil surfaces is an actual task of the airplane aerodynamics.

### Materials and methods

The study of air flow around the airfoils was carried out in a two-dimensional formulation by means of the computer calculation in the *Comsol Multiphysics* program. The airfoils in the cross section were taken as objects of research [1-33]. In this work,

the airfoils having the names beginning with the letter *R* were adopted. Air flow around the airfoils was carried out at angles of attack ( $\alpha$ ) of 0, 15 and -15 degrees. Flight speed of the airplane in each case was subsonic. The airplane flight in the atmosphere was carried out under normal weather conditions. The geometric characteristics of the studied airfoils are presented in the Table 1. The geometric shapes of the airfoils in the cross section are presented in the Table 2.

**Table 1. The geometric characteristics of the airfoils.**

Airfoil name	Max. thickness	Max. camber	Leading edge radius	Trailing edge thickness
<i>R140 12,04% (smoothed)</i>	12.04% at 39.3% of the chord	0.44% at 39.3% of the chord	0.6751%	0.0%
<i>R140 (original)</i>	12.0% at 39.3% of the chord	0.46% at 42.1% of the chord	0.6176%	0.0%
<i>R-3</i>	15.5% at 25.0% of the chord	4.43% at 20.0% of the chord	2.2273%	0.0%
<i>RAE 2822</i>	12.11% at 37.9% of the chord	1.26% at 75.7% of the chord	0.8496%	0.0%
<i>RAE 5214</i>	9.67% at 35.5% of the chord	1.44% at 69.1% of the chord	1.9495%	0.0%
<i>RAE 5215</i>	9.65% at 35.5% of the chord	1.63% at 69.1% of the chord	1.9495%	0.38%
<i>RAE(NPL) 5212</i>	11.95% at 35.5% of the chord	1.83% at 69.1% of the chord	1.3429%	0.0%
<i>RAE(NPL) 5213</i>	9.95% at 35.5% of the chord	1.44% at 69.1% of the chord	1.9495%	0.0%
<i>RAE6-9CK</i>	12.11% at 37.9% of the chord	1.26% at 75.7% of the chord	0.8496%	0.0%
<i>RAF 15</i>	6.49% at 15.0% of the chord	2.61% at 30.0% of the chord	0.8188%	0.0%
<i>RAF 19</i>	10.5% at 15.0% of the chord	10.14% at 40.0% of the chord	1.2276%	0.0%
<i>RAF 25</i>	6.48% at 30.1% of the chord	1.04% at 50.1% of the chord	0.7155%	0.0%
<i>RAF 26</i>	6.62% at 30.0% of the chord	2.14% at 50.0% of the chord	0.6559%	0.0%
<i>RAF 27</i>	9.76% at 30.0% of the chord	0.0% at 0.0% of the chord	0.8931%	0.0%
<i>RAF 28</i>	9.82% at 30.0% of the chord	1.93% at 40.0% of the chord	0.8805%	0.0%
<i>RAF 30</i>	12.64% at 30.0% of the chord	0.0% at 0.0% of the chord	1.3224%	0.0%
<i>RAF 30 MOD</i>	7.6% at 30.0% of the chord	0.0% at 0.0% of the chord	0.7648%	0.0%
<i>RAF 31</i>	12.74% at 30.0% of the chord	2.07% at 50.0% of the chord	1.2741%	0.0%
<i>RAF 32</i>	12.68% at 30.0% of the chord	5.01% at 50.0% of the chord	1.8051%	0.0%
<i>RAF 32 MOD</i>	10.16% at 30.0% of the chord	3.95% at 50.0% of the chord	0.9261%	0.0%
<i>RAF 33</i>	12.64% at 30.0% of the chord	4.69% at 30.0% of the chord	1.4192%	0.0%
<i>RAF 34</i>	12.64% at 30.0% of the chord	2.0% at 30.0% of the chord	1.3033%	0.0%
<i>RAF 38</i>	12.65% at 30.0% of the chord	2.52% at 40.0% of the chord	1.8256%	0.0%
<i>RAF 6</i>	9.98% at 30.0% of the chord	4.59% at 30.0% of the chord	1.6744%	0.3%
<i>RAF 69</i>	20.64% at 30.0% of the chord	1.71% at 50.0% of the chord	3.3379%	0.0%
<i>RAF 89</i>	25.0% at 30.0% of the chord	1.64% at 50.0% of the chord	5.1501%	0.0%
<i>RAF-48</i>	14.96% at 30.0% of the chord	2.93% at 40.0% of the chord	1.7532%	0.0%
<i>REFLEXSI</i>	8.8% at 15.0% of the chord	5.75% at 30.0% of the chord	1.2343%	0.3%
<i>REPUBLIC S-3</i>	11.0% at 30.0% of the chord	1.83% at 15.0% of the chord	0.9011%	0.0%
<i>RG 12A-1,8-9,0</i>	8.99% at 34.4% of the chord	1.8% at 34.4% of the chord	0.5536%	0.0%
<i>RG 14</i>	8.47% at 31.0% of the chord	1.58% at 36.0% of the chord	0.4321%	0.0%
<i>RG 14 10%</i>	10.0% at 31.0% of the chord	1.58% at 36.0% of the chord	1.0017%	0.0%
<i>RG 14 9%</i>	9.0% at 31.0% of the chord	1.58% at 36.0% of the chord	0.864%	0.0%
<i>RG 14 9,5%</i>	9.5% at 31.0% of the chord	1.58% at 36.0% of the chord	0.9301%	0.0%
<i>RG 14A-1,4-7,0</i>	7.0% at 29.8% of the chord	1.4% at 34.4% of the chord	0.4058%	0.0%
<i>RG 15A 2,5-13,0</i>	12.99% at 30.4% of the chord	2.5% at 39.7% of the chord	1.2121%	0.0%
<i>RG 15A-1,8-11,0</i>	11.0% at 30.4% of the chord	1.8% at 39.7% of the chord	0.8897%	0.0%
<i>RG 8</i>	10.78% at 33.6% of the chord	2.22% at 59.4% of the chord	0.7905%	0.0%
<i>RG-12</i>	9.26% at 30.9% of the chord	1.38% at 35.8% of the chord	0.4786%	0.0%
<i>RG-12A</i>	8.99% at 34.4% of the chord	1.8% at 34.4% of the chord	0.5536%	0.0%
<i>RG-14</i>	8.47% at 31.0% of the chord	1.58% at 36.0% of the chord	0.8008%	0.0%
<i>RG14A147</i>	7.0% at 29.8% of the chord	1.4% at 34.4% of the chord	0.4058%	0.0%
<i>RG-15</i>	8.92% at 30.2% of the chord	1.76% at 40.3% of the chord	0.6885%	0.0%
<i>RG-15 8,9%</i>	8.92% at 30.2% of the chord	1.76% at 40.3% of the chord	0.4852%	0.0%
<i>RG-8</i>	10.78% at 33.6% of the chord	2.22% at 59.4% of the chord	0.7102%	0.0%
<i>Rhode St Genese 26</i>	10.0% at 30.0% of the chord	5.0% at 30.0% of the chord	0.5652%	0.0%
<i>Rhode St Genese 28</i>	7.58% at 30.0% of the chord	3.79% at 30.0% of the chord	0.8187%	0.0%
<i>Rhode St Genese 29</i>	8.66% at 30.0% of the chord	4.33% at 30.0% of the chord	0.9046%	0.0%
<i>Rhode St Genese 30</i>	9.74% at 30.0% of the chord	4.87% at 30.0% of the chord	0.9234%	0.0%
<i>Rhode St Genese 31</i>	10.82% at 30.0% of the chord	5.41% at 30.0% of the chord	1.2494%	0.0%

## Impact Factor:

<b>ISRA (India)</b> = <b>6.317</b>	<b>SIS (USA)</b> = <b>0.912</b>	<b>ICV (Poland)</b> = <b>6.630</b>
<b>ISI (Dubai, UAE)</b> = <b>1.582</b>	<b>ПИИИ (Russia)</b> = <b>3.939</b>	<b>PIF (India)</b> = <b>1.940</b>
<b>GIF (Australia)</b> = <b>0.564</b>	<b>ESJI (KZ)</b> = <b>8.771</b>	<b>IBI (India)</b> = <b>4.260</b>
<b>JIF</b> = <b>1.500</b>	<b>SJIF (Morocco)</b> = <b>7.184</b>	<b>OAJI (USA)</b> = <b>0.350</b>

<i>Rhode St Genese 32</i>	11.9% at 30.0% of the chord	5.95% at 30.0% of the chord	1.5398%	0.0%
<i>Ritz 1-30-10</i>	10.0% at 30.0% of the chord	1.0% at 30.0% of the chord	0.9454%	0.2%
<i>Ritz 1-30-11</i>	11.0% at 30.0% of the chord	1.0% at 30.0% of the chord	1.0825%	0.22%
<i>Ritz 1-30-12</i>	12.0% at 30.0% of the chord	1.0% at 30.0% of the chord	1.2419%	0.24%
<i>Ritz 1-30-13</i>	13.0% at 30.0% of the chord	1.0% at 30.0% of the chord	1.4229%	0.26%
<i>Ritz 1-30-14</i>	14.0% at 30.0% of the chord	1.0% at 30.0% of the chord	1.6245%	0.28%
<i>Ritz 1-30-15</i>	15.0% at 30.0% of the chord	1.0% at 30.0% of the chord	1.8462%	0.3%
<i>Ritz 1-30-5</i>	5.0% at 30.0% of the chord	1.0% at 30.0% of the chord	0.6166%	0.1%
<i>Ritz 1-30-6</i>	6.0% at 30.0% of the chord	1.0% at 30.0% of the chord	0.6355%	0.12%
<i>Ritz 1-30-7</i>	7.0% at 30.0% of the chord	1.0% at 30.0% of the chord	0.6767%	0.14%
<i>Ritz 1-30-8</i>	8.0% at 30.0% of the chord	1.0% at 30.0% of the chord	0.7419%	0.16%
<i>Ritz 1-30-9</i>	9.0% at 30.0% of the chord	1.0% at 30.0% of the chord	0.8316%	0.18%
<i>Ritz 2-30-10</i>	10.0% at 30.0% of the chord	2.0% at 30.0% of the chord	0.9454%	0.2%
<i>Ritz 2-30-11</i>	11.0% at 30.0% of the chord	2.0% at 30.0% of the chord	1.0825%	0.22%
<i>Ritz 2-30-12</i>	12.0% at 30.0% of the chord	2.0% at 30.0% of the chord	1.0111%	0.2%
<i>Ritz 2-30-13</i>	13.0% at 30.0% of the chord	2.0% at 30.0% of the chord	1.4229%	0.26%
<i>Ritz 2-30-14</i>	14.0% at 30.0% of the chord	2.0% at 30.0% of the chord	1.6245%	0.28%
<i>Ritz 2-30-15</i>	15.0% at 30.0% of the chord	2.0% at 30.0% of the chord	1.8462%	0.3%
<i>Ritz 2-30-5</i>	5.0% at 30.0% of the chord	2.0% at 30.0% of the chord	0.6166%	0.1%
<i>Ritz 2-30-6</i>	6.0% at 30.0% of the chord	2.0% at 30.0% of the chord	0.6355%	0.12%
<i>Ritz 2-30-7</i>	7.0% at 30.0% of the chord	2.0% at 30.0% of the chord	0.6767%	0.14%
<i>Ritz 2-30-8</i>	8.0% at 30.0% of the chord	2.0% at 30.0% of the chord	0.7419%	0.16%
<i>Ritz 2-30-9</i>	9.0% at 30.0% of the chord	2.0% at 30.0% of the chord	0.8316%	0.18%
<i>Ritz 3-30-10</i>	10.0% at 30.0% of the chord	3.0% at 30.0% of the chord	0.8648%	0.2%
<i>Ritz 3-30-11</i>	11.0% at 30.0% of the chord	3.0% at 30.0% of the chord	0.9873%	0.22%
<i>Ritz 3-30-12</i>	12.0% at 30.0% of the chord	3.0% at 30.0% of the chord	1.1291%	0.24%
<i>Ritz 3-30-13</i>	13.0% at 30.0% of the chord	3.0% at 30.0% of the chord	1.2897%	0.26%
<i>Ritz 3-30-14</i>	14.0% at 30.0% of the chord	3.0% at 30.0% of the chord	1.4686%	0.28%
<i>Ritz 3-30-15</i>	15.0% at 30.0% of the chord	3.0% at 30.0% of the chord	1.6654%	0.3%
<i>Ritz 3-30-5</i>	5.0% at 30.0% of the chord	3.0% at 30.0% of the chord	0.5337%	0.1%
<i>Ritz 3-30-6</i>	6.0% at 30.0% of the chord	3.0% at 30.0% of the chord	0.5638%	0.12%
<i>Ritz 3-30-7</i>	7.0% at 30.0% of the chord	3.0% at 30.0% of the chord	0.6118%	0.14%
<i>Ritz 3-30-8</i>	8.0% at 30.0% of the chord	3.0% at 30.0% of the chord	0.6775%	0.16%
<i>Ritz 3-30-9</i>	9.0% at 30.0% of the chord	3.0% at 30.0% of the chord	0.7616%	0.18%
<i>RK40</i>	8.48% at 36.6% of the chord	2.12% at 41.9% of the chord	0.3973%	0.0%
<i>Roma 701</i>	10.96% at 30.0% of the chord	5.92% at 30.0% of the chord	2.1712%	0.0%
<b>RONCZ LOW DRAG FLYING WING</b>	12.05% at 42.2% of the chord	2.8% at 38.4% of the chord	0.7781%	0.4034%
<i>RoncZ/Marske-7</i>	12.05% at 42.2% of the chord	2.8% at 38.4% of the chord	0.7795%	0.404%
<i>rs001</i>	9.83% at 25.0% of the chord	1.64% at 34.5% of the chord	0.7693%	0.0%
<i>rs001m05</i>	9.92% at 25.9% of the chord	0.82% at 34.5% of the chord	0.7167%	0.0%
<i>Rs001m60</i>	9.93% at 25.9% of the chord	0.66% at 34.5% of the chord	0.7197%	0.0%
<i>Rs001m75</i>	9.96% at 25.9% of the chord	0.41% at 34.5% of the chord	0.7236%	0.0%
<i>rs001i10</i>	9.99% at 25.0% of the chord	0.03% at 44.8% of the chord	0.8032%	0.0%
<i>rs004a</i>	8.99% at 25.0% of the chord	1.64% at 34.5% of the chord	0.6676%	0.0%
<i>RSG-28</i>	7.58% at 30.0% of the chord	3.79% at 30.0% of the chord	0.8187%	0.0%
<i>RSG-29</i>	8.66% at 30.0% of the chord	4.33% at 30.0% of the chord	0.9046%	0.0%
<i>RSG-30</i>	9.74% at 30.0% of the chord	4.87% at 30.0% of the chord	0.9234%	0.0%
<i>RSG-31</i>	10.82% at 30.0% of the chord	5.41% at 30.0% of the chord	1.2494%	0.0%
<i>RSG-32</i>	11.9% at 30.0% of the chord	5.95% at 30.0% of the chord	1.5398%	0.0%
<i>RSG-34</i>	14.07% at 30.0% of the chord	7.03% at 30.0% of the chord	2.2251%	0.0%
<i>RSG-36</i>	16.23% at 30.0% of the chord	8.12% at 30.0% of the chord	2.8549%	0.0%
<i>RSG-82</i>	7.58% at 30.0% of the chord	3.79% at 30.0% of the chord	0.8102%	0.0%
<i>Rutan AMSOIL racer canard airfoil</i>	11.62% at 39.0% of the chord	2.08% at 42.0% of the chord	2.1697%	0.442%
<i>Rutan AMSOIL racer wing airfoil</i>	11.76% at 39.0% of the chord	0.97% at 48.0% of the chord	2.143%	0.448%
<b>RUTAN CANARD</b>	11.62% at 39.0% of the chord	2.08% at 42.0% of the chord	2.1697%	0.442%
<b>RUTAN WING</b>	11.76% at 39.0% of the chord	0.97% at 48.0% of the chord	2.143%	0.448%
<i>Ryan BQM-34</i>	9.9% at 32.5% of the chord	0.0% at 0.0% of the chord	1.0353%	0.0%
<b>RYAN BQM-34 FIREBEE WING</b>	9.9% at 32.5% of the chord	0.0% at 0.0% of the chord	1.0335%	0.0%

### Note:

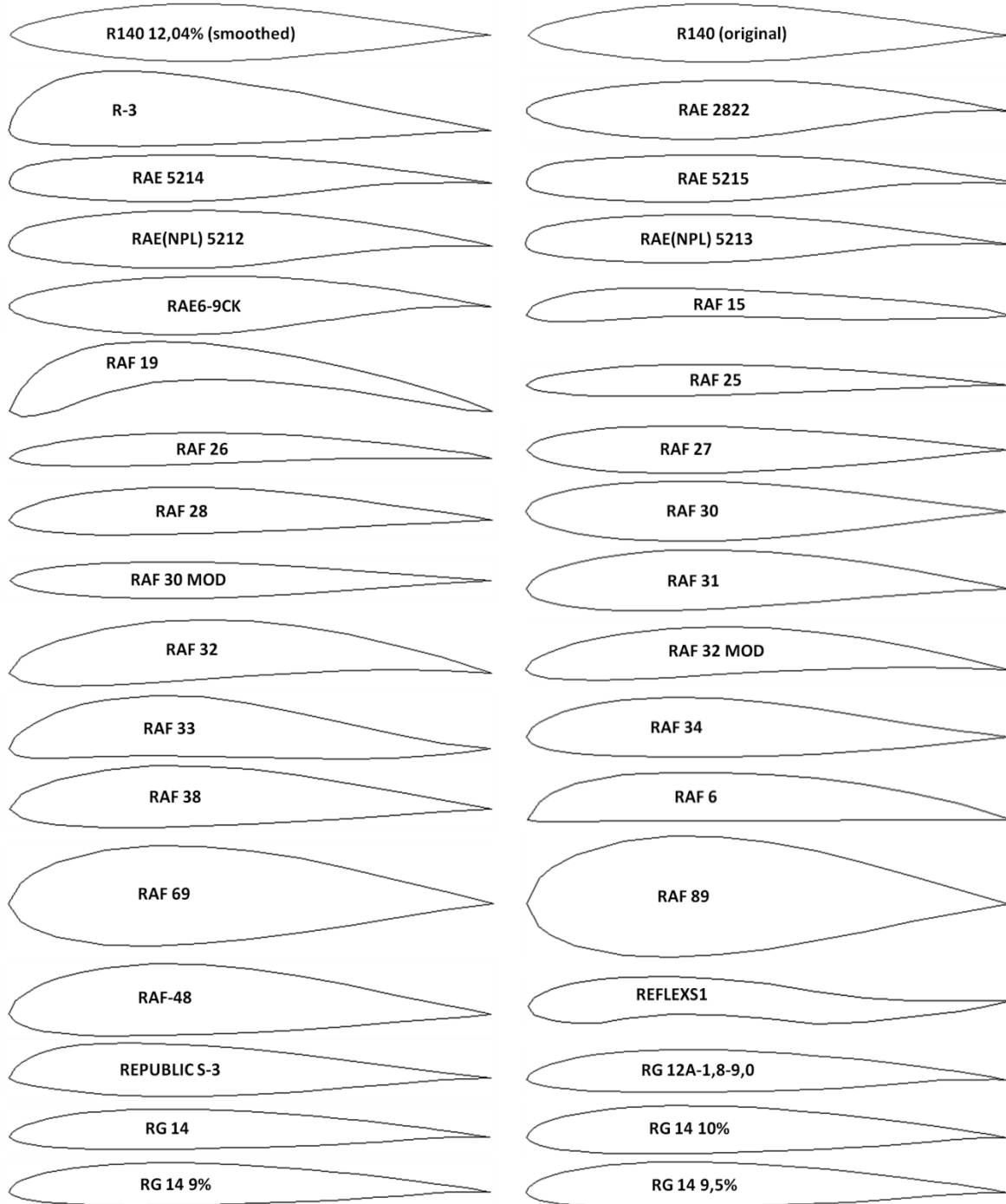
RAE (The Royal Aeronautical Establishment in Britain);  
 RAF (The National Physical Laboratories in Britain);  
 R140 (original) (R140 Quickee 500 airfoil);  
 REPUBLIC S-3 (P-47 wing airfoil);  
 RG 14 (Rolf Girsberger RG 14 airfoil);

**Impact Factor:**

<b>ISRA</b> (India) = <b>6.317</b>	<b>SIS</b> (USA) = <b>0.912</b>	<b>ICV</b> (Poland) = <b>6.630</b>
<b>ISI</b> (Dubai, UAE) = <b>1.582</b>	<b>ПИИЦ</b> (Russia) = <b>3.939</b>	<b>PIF</b> (India) = <b>1.940</b>
<b>GIF</b> (Australia) = <b>0.564</b>	<b>ESJI</b> (KZ) = <b>8.771</b>	<b>IBI</b> (India) = <b>4.260</b>
<b>JIF</b> = <b>1.500</b>	<b>SJIF</b> (Morocco) = <b>7.184</b>	<b>OAJI</b> (USA) = <b>0.350</b>

*Rhode St Genese 26, Rhode St Genese 28, Rhode St Genese 29, Rhode St Genese 30, Rhode St Genese 31, Rhode St Genese 32* (Rhode St. Genese (Belgium));  
*Ritz 1-30-10, Ritz 1-30-11, Ritz 1-30-12, Ritz 1-30-13, Ritz 1-30-14, Ritz 1-30-15, Ritz 1-30-5, Ritz 1-30-6, Ritz 1-30-7, Ritz 1-30-8, Ritz 1-30-9, Ritz 2-30-10, Ritz 2-30-11, Ritz 2-30-12, Ritz 2-30-13, Ritz 2-30-14, Ritz 2-30-15, Ritz 2-30-5, Ritz 2-30-6, Ritz 2-30-7, Ritz 2-30-8, Ritz 2-30-9, Ritz 3-30-10, Ritz 3-30-11, Ritz 3-30-12, Ritz 3-30-13, Ritz 3-30-14, Ritz 3-30-15, Ritz 3-30-5, Ritz 3-30-6, Ritz 3-30-7, Ritz 3-30-8, Ritz 3-30-9* (F. Ritz (Germany));  
*RK40* (Ralf Kormann (racer F5D electrique champion du monde 2000));  
*Roma 701* (DGA (Italy));  
*Roncz/Marske-7* (Low drag flying wing);  
*Rs001m60, Rs001m75* ((c)Reinhard Sielemann);  
*Ryan BQM-34* (Firebee wing airfoil (NACA 63-014A W/NACA 0014 nose and thinned to .09899 to account for sweep)).

**Table 2. The geometric shapes of the airfoils in the cross section.**



**Impact Factor:**

**ISRA (India) = 6.317**  
**ISI (Dubai, UAE) = 1.582**  
**GIF (Australia) = 0.564**  
**JIF = 1.500**

**SIS (USA) = 0.912**  
**ПИИЦ (Russia) = 3.939**  
**ESJI (KZ) = 8.771**  
**SJIF (Morocco) = 7.184**

**ICV (Poland) = 6.630**  
**PIF (India) = 1.940**  
**IBI (India) = 4.260**  
**OAJI (USA) = 0.350**

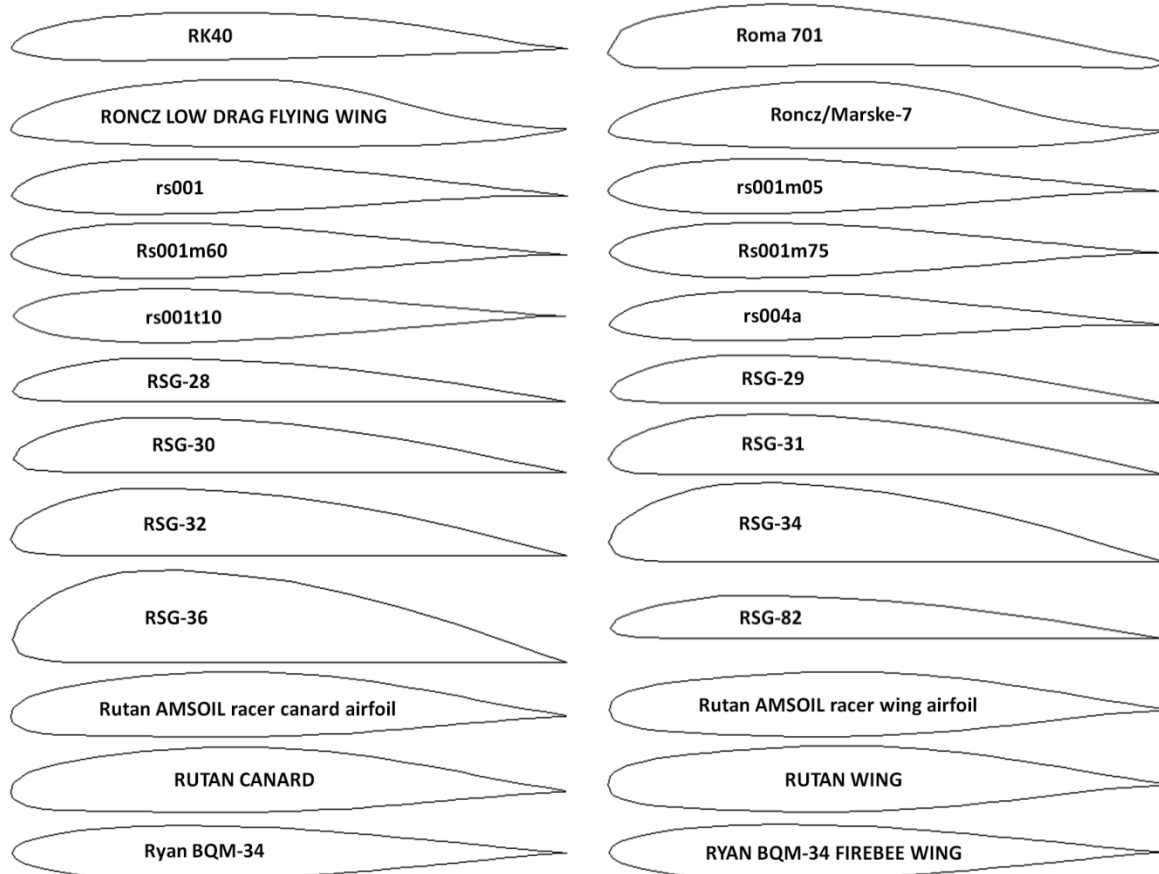
RG 14A-1,4-7,0	RG 15A 2,5-13,0
RG 15A-1,8-11,0	RG 8
RG-12	RG-12A
RG-14	RG14A147
RG-15	RG-15 8,9%
RG-8	Rhode St Genese 26
Rhode St Genese 28	Rhode St Genese 29
Rhode St Genese 30	Rhode St Genese 31
Rhode St Genese 32	Ritz 1-30-10
Ritz 1-30-11	Ritz 1-30-12
Ritz 1-30-13	Ritz 1-30-14
Ritz 1-30-15	Ritz 1-30-5
Ritz 1-30-6	Ritz 1-30-7
Ritz 1-30-8	Ritz 1-30-9
Ritz 2-30-10	Ritz 2-30-11
Ritz 2-30-12	Ritz 2-30-13
Ritz 2-30-14	Ritz 2-30-15
Ritz 2-30-5	Ritz 2-30-6
Ritz 2-30-7	Ritz 2-30-8
Ritz 2-30-9	Ritz 3-30-10
Ritz 3-30-11	Ritz 3-30-12
Ritz 3-30-13	Ritz 3-30-14
Ritz 3-30-15	Ritz 3-30-5
Ritz 3-30-6	Ritz 3-30-7
Ritz 3-30-8	Ritz 3-30-9

## Impact Factor:

ISRA (India) = 6.317  
 ISI (Dubai, UAE) = 1.582  
 GIF (Australia) = 0.564  
 JIF = 1.500

SIS (USA) = 0.912  
 ПИИЦ (Russia) = 3.939  
 ESJI (KZ) = 8.771  
 SJIF (Morocco) = 7.184

ICV (Poland) = 6.630  
 PIF (India) = 1.940  
 IBI (India) = 4.260  
 OAJI (USA) = 0.350



### Results and discussion

The calculated pressure contours on the surfaces of the airfoils at different angles of attack are presented in the Figs. 1-108. The calculated values on the scale can be represented as the basic values when comparing the pressure drop under conditions of changing the angle of attack of the airfoils.

108 airfoils of RAE, RAF, RG, Ritz, RSG types and others were considered in this article. All airfoils are asymmetrical, with the exception of the RAF 27, RAF 30, RAF 30 MOD and RYAN BQM-34 (RYAN BQM-34 FIREBEE WING).

The largest and smallest thicknesses of the studied airfoils are 25% and 5% for RAF 89 and Ritz 1-30-5, Ritz 2-30-5 and Ritz 3-30-5, respectively. The largest and smallest cambers are 10.14% and 0.0% for the RAF 19 and all symmetrical airfoils, respectively. The largest and smallest leading edge radii are 5.1501% and 0.4058% for the RAF 89 and RG 14A-1,4-7,0, respectively. The largest and smallest trailing edge thicknesses are 0.448% and 0.0% for the Rutan AMSOIL racer wing and most airfoils, respectively.

Let us consider in detail the aerodynamic characteristics of some airfoils: R-3, RAF 15, RAF 33, REFLEXS1, Rhode St Genese 26, Ritz 2-30-5, Roncz/Marske-7 and RUTAN WING.

In the conditions of the airplane climb, the convex upper surface of the R-3 airfoil reduces the negative pressure on the surface by two times,

compared with the airplane descent maneuver. The pressure difference on the upper and lower surfaces of the airfoil can be 1:4. The bulge on the upper surface ensures the formation of a negative pressure gradient in magnitude greater than the positive pressure at zero, positive and negative angles of attack.

Negative pressure on the leading edge increases up to 30 times when the angle of attack of the RAF 15 airfoil increases from 0 to 15 degrees. At the same time, changing the angle of attack to -15 degrees leads to an increase in pressure by 8 times. The horizontal position of the airfoil provides the pressure difference on the surfaces up to 1:2.5.

The location of the maximum thickness of the RAF 33 airfoil in the middle of the chord length is characterized by an increase in negative pressure during the airplane climb. Some camber of the airfoil from the trailing edge affects the formation of air flows at angles of attack of 0 and -15 degrees.

The REFLEXS1 airfoil is characterized by a large drag on the leading edge at an angle of attack of 15 degrees. The configuration of the front part of the airfoil contributes to the formation of pressure gradients of the same intensity on the upper and lower surfaces at angles of attack of 15 and -15 degrees.

The geometric shape of the upper surface of the Rhode St Genese 26 airfoil distributes the maximum negative pressure over the entire surface in the horizontal flight conditions.



**Impact Factor:**

ISRA (India) = 6.317	SIS (USA) = 0.912	ICV (Poland) = 6.630
ISI (Dubai, UAE) = 1.582	ПИИЦ (Russia) = 3.939	PIF (India) = 1.940
GIF (Australia) = 0.564	ESJI (KZ) = 8.771	IBI (India) = 4.260
JIF = 1.500	SJIF (Morocco) = 7.184	OAJI (USA) = 0.350

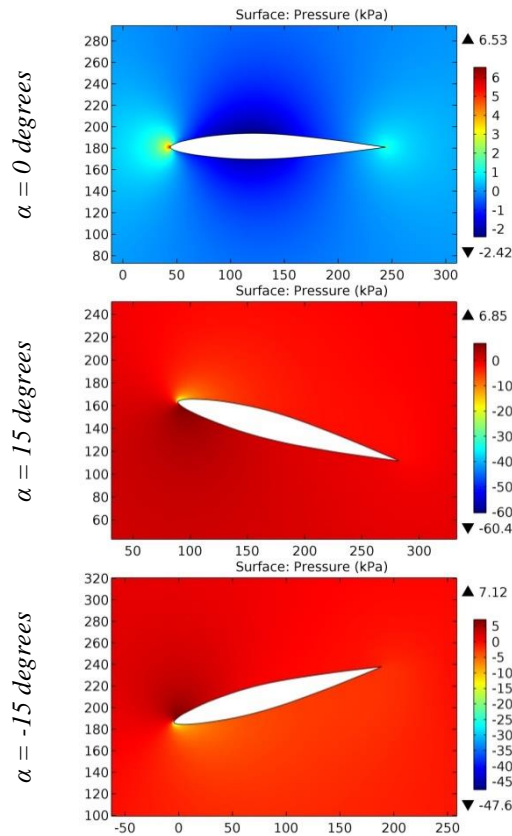


Figure 1. The pressure contours on the surfaces of the R140 12,04% (smoothed) airfoil.

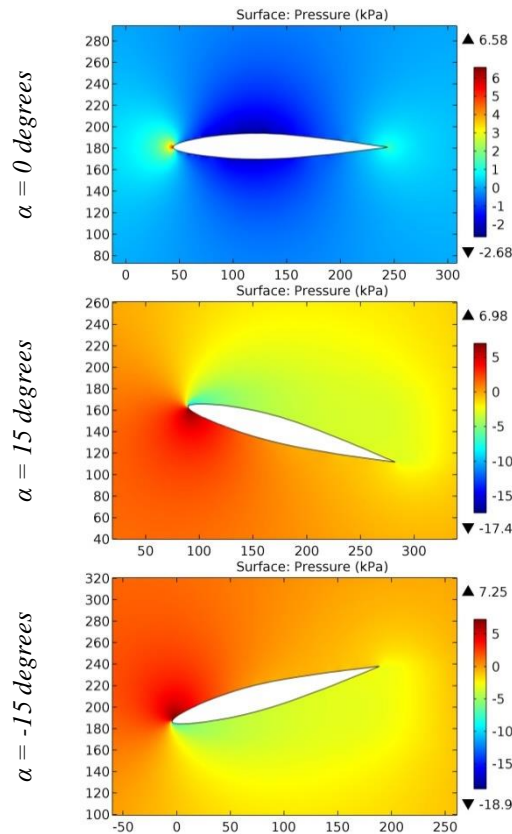


Figure 2. The pressure contours on the surfaces of the R140 (original) airfoil.

**Impact Factor:**

ISRA (India) = 6.317	SIS (USA) = 0.912	ICV (Poland) = 6.630
ISI (Dubai, UAE) = 1.582	ПИИЦ (Russia) = 3.939	PIF (India) = 1.940
GIF (Australia) = 0.564	ESJI (KZ) = 8.771	IBI (India) = 4.260
JIF = 1.500	SJIF (Morocco) = 7.184	OAJI (USA) = 0.350

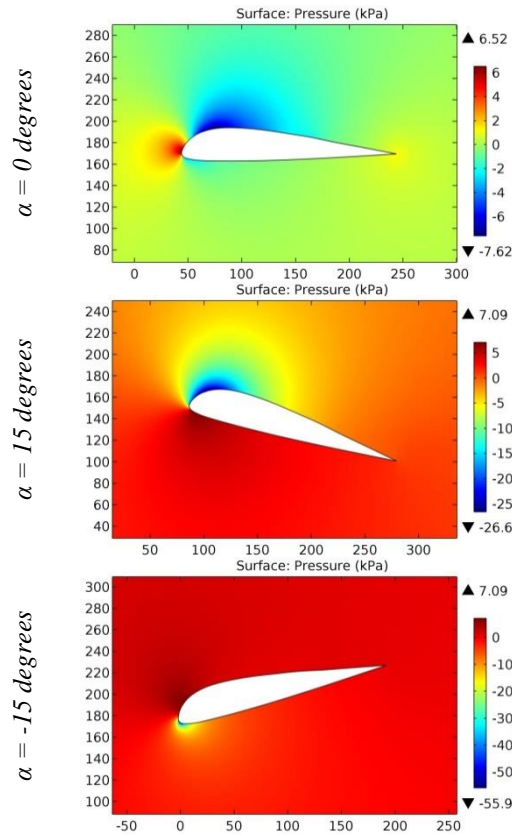


Figure 3. The pressure contours on the surfaces of the R-3 airfoil.

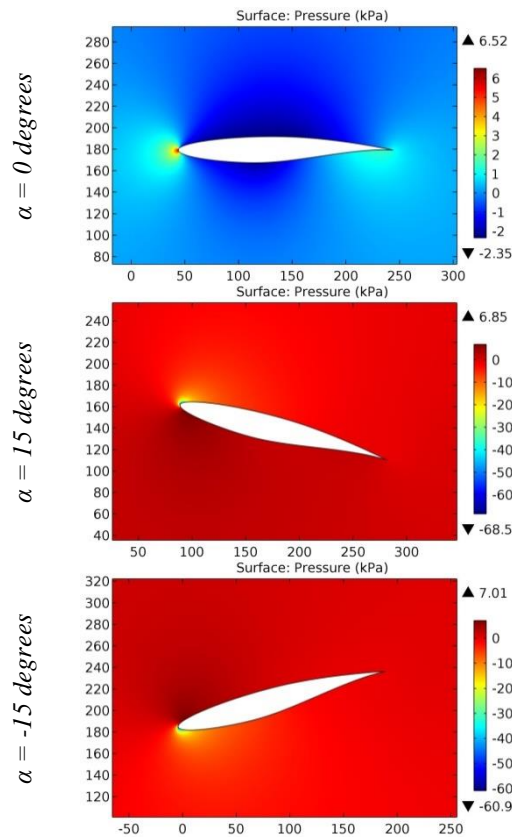


Figure 4. The pressure contours on the surfaces of the RAE 2822 airfoil.

**Impact Factor:**

ISRA (India) = 6.317	SIS (USA) = 0.912	ICV (Poland) = 6.630
ISI (Dubai, UAE) = 1.582	ПИИЦ (Russia) = 3.939	PIF (India) = 1.940
GIF (Australia) = 0.564	ESJI (KZ) = 8.771	IBI (India) = 4.260
JIF = 1.500	SJIF (Morocco) = 7.184	OAJI (USA) = 0.350

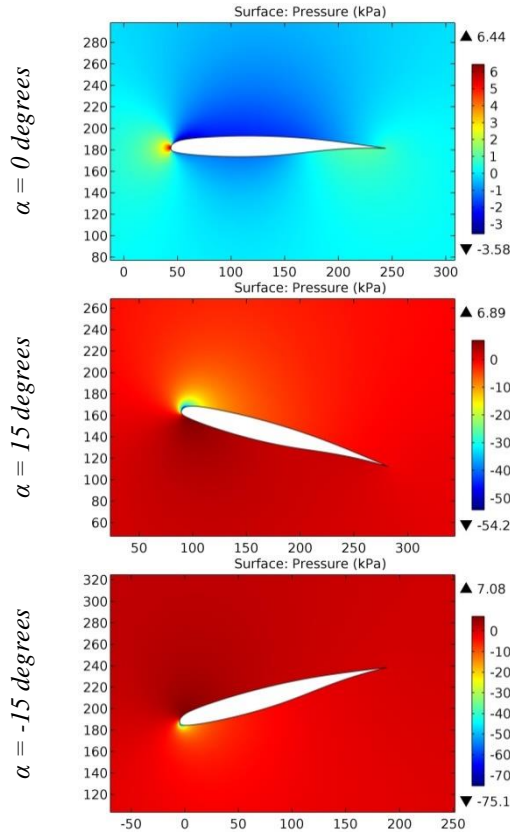


Figure 5. The pressure contours on the surfaces of the RAE 5214 airfoil.

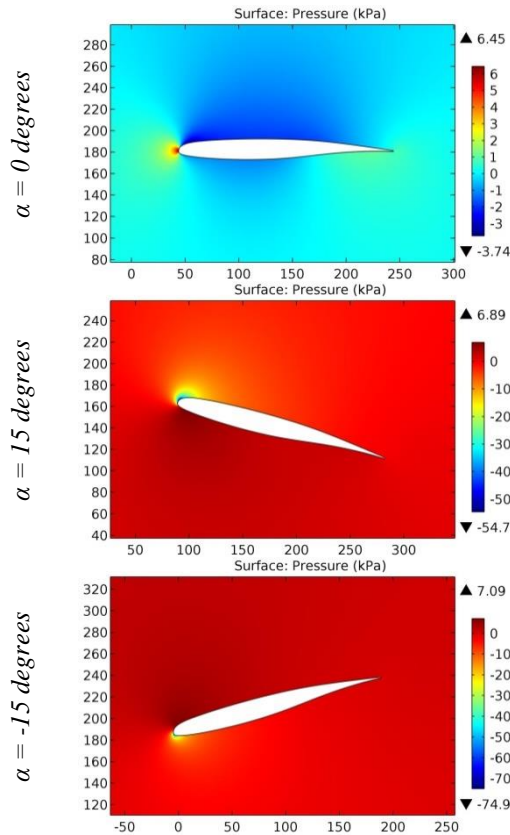


Figure 6. The pressure contours on the surfaces of the RAE 5215 airfoil.

**Impact Factor:**

ISRA (India) = 6.317	SIS (USA) = 0.912	ICV (Poland) = 6.630
ISI (Dubai, UAE) = 1.582	ПИИЦ (Russia) = 3.939	PIF (India) = 1.940
GIF (Australia) = 0.564	ESJI (KZ) = 8.771	IBI (India) = 4.260
JIF = 1.500	SJIF (Morocco) = 7.184	OAJI (USA) = 0.350

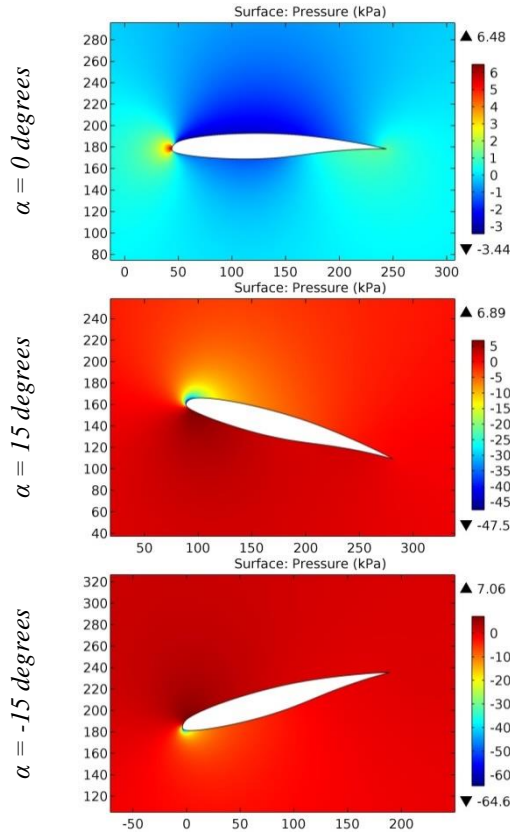


Figure 7. The pressure contours on the surfaces of the RAE(NPL) 5212 airfoil.

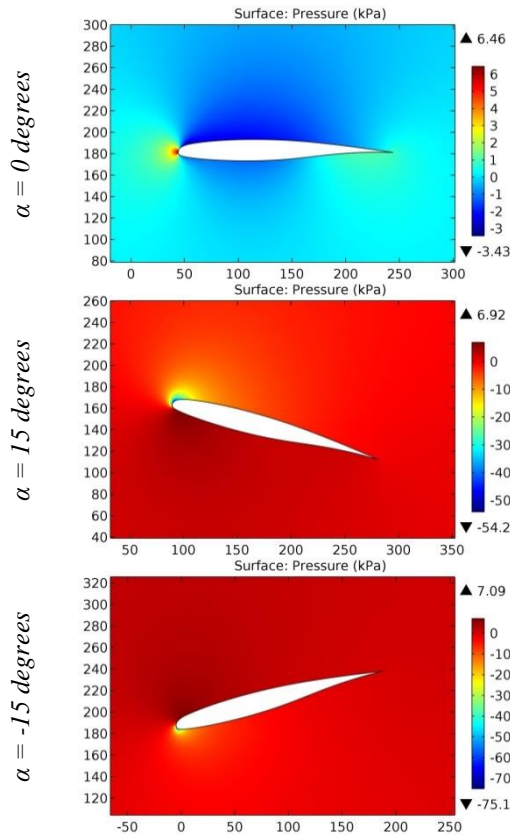


Figure 8. The pressure contours on the surfaces of the RAE(NPL) 5213 airfoil.

**Impact Factor:**

ISRA (India) = 6.317	SIS (USA) = 0.912	ICV (Poland) = 6.630
ISI (Dubai, UAE) = 1.582	ПИИЦ (Russia) = 3.939	PIF (India) = 1.940
GIF (Australia) = 0.564	ESJI (KZ) = 8.771	IBI (India) = 4.260
JIF = 1.500	SJIF (Morocco) = 7.184	OAJI (USA) = 0.350

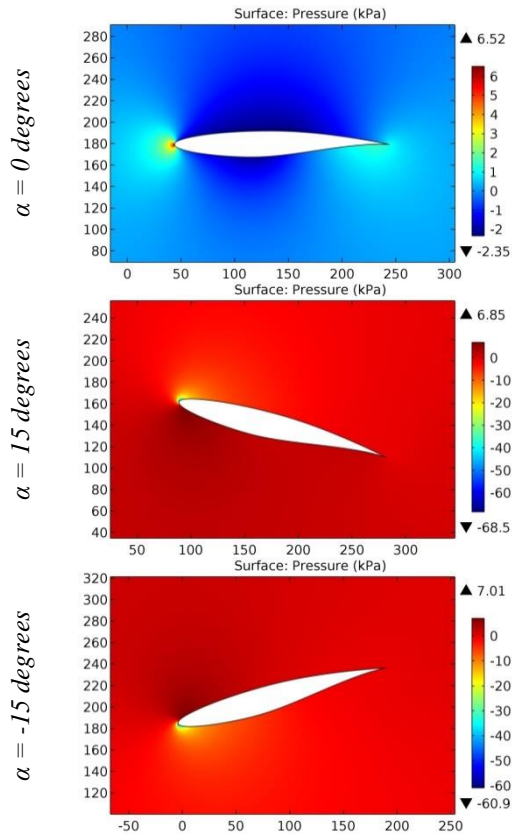


Figure 9. The pressure contours on the surfaces of the RAE6-9CK airfoil.

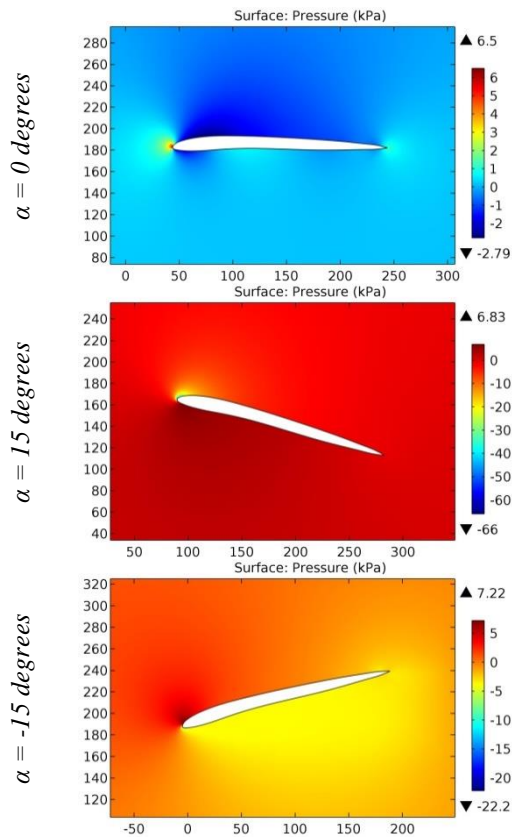


Figure 10. The pressure contours on the surfaces of the RAF 15 airfoil.



**Impact Factor:**

ISRA (India) = 6.317	SIS (USA) = 0.912	ICV (Poland) = 6.630
ISI (Dubai, UAE) = 1.582	ПИИЦ (Russia) = 3.939	PIF (India) = 1.940
GIF (Australia) = 0.564	ESJI (KZ) = 8.771	IBI (India) = 4.260
JIF = 1.500	SJIF (Morocco) = 7.184	OAJI (USA) = 0.350

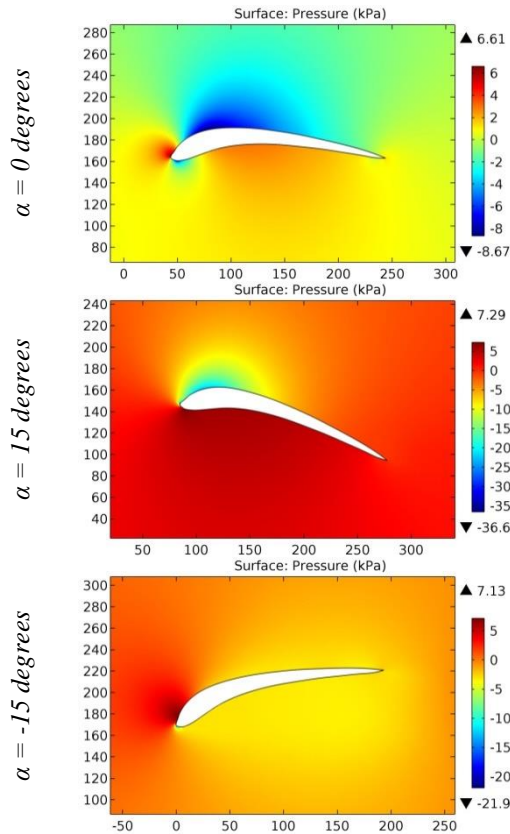


Figure 11. The pressure contours on the surfaces of the RAF 19 airfoil.

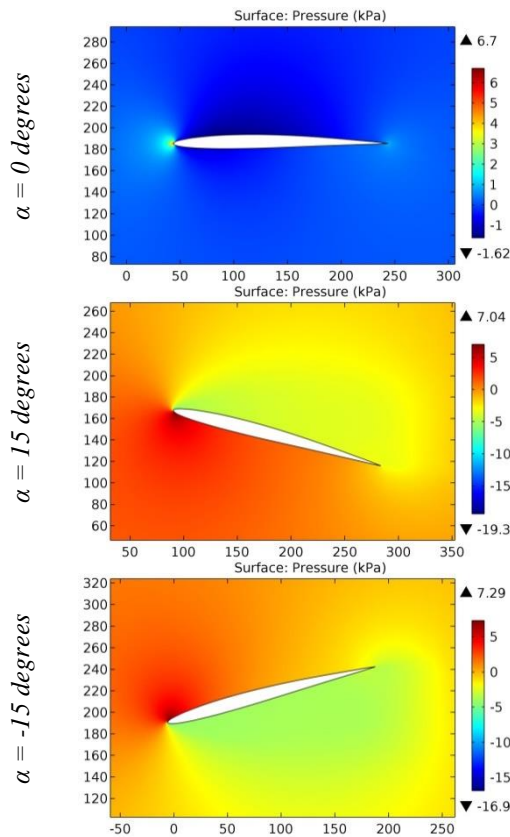


Figure 12. The pressure contours on the surfaces of the RAF 25 airfoil.

**Impact Factor:**

ISRA (India) = 6.317	SIS (USA) = 0.912	ICV (Poland) = 6.630
ISI (Dubai, UAE) = 1.582	ПИИЦ (Russia) = 3.939	PIF (India) = 1.940
GIF (Australia) = 0.564	ESJI (KZ) = 8.771	IBI (India) = 4.260
JIF = 1.500	SJIF (Morocco) = 7.184	OAJI (USA) = 0.350

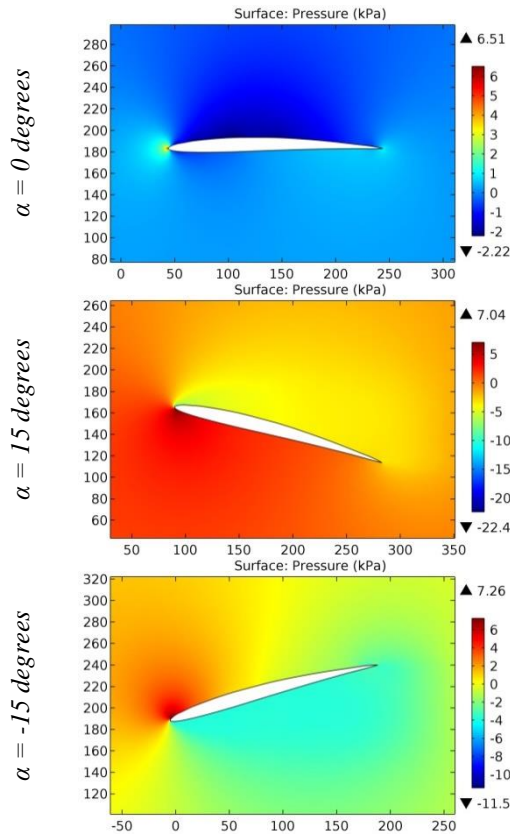


Figure 13. The pressure contours on the surfaces of the RAF 26 airfoil.

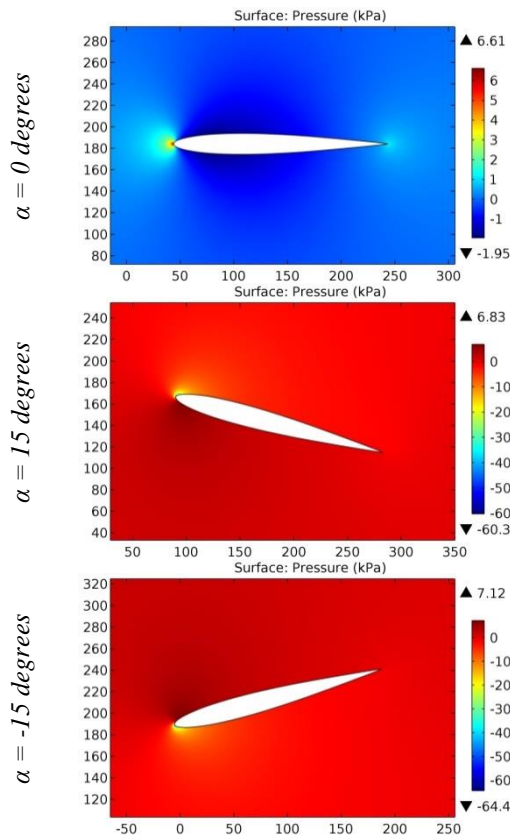


Figure 14. The pressure contours on the surfaces of the RAF 27 airfoil.

**Impact Factor:**

ISRA (India) = 6.317	SIS (USA) = 0.912	ICV (Poland) = 6.630
ISI (Dubai, UAE) = 1.582	ПИИЦ (Russia) = 3.939	PIF (India) = 1.940
GIF (Australia) = 0.564	ESJI (KZ) = 8.771	IBI (India) = 4.260
JIF = 1.500	SJIF (Morocco) = 7.184	OAJI (USA) = 0.350

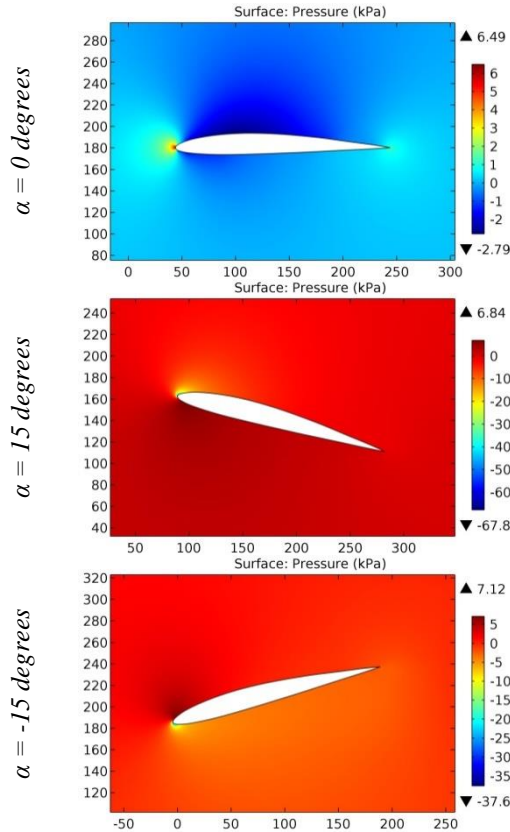


Figure 15. The pressure contours on the surfaces of the RAF 28 airfoil.

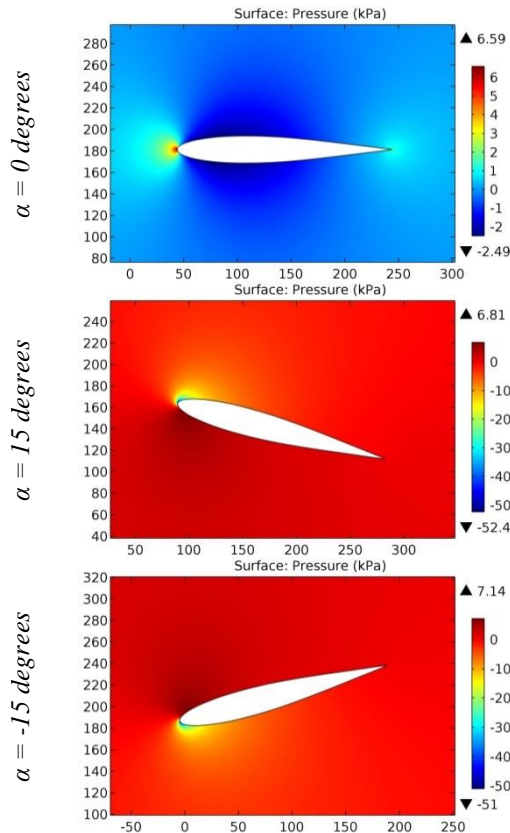


Figure 16. The pressure contours on the surfaces of the RAF 30 airfoil.

**Impact Factor:**

<b>ISRA (India)</b> = <b>6.317</b>	<b>SIS (USA)</b> = <b>0.912</b>	<b>ICV (Poland)</b> = <b>6.630</b>
<b>ISI (Dubai, UAE)</b> = <b>1.582</b>	<b>ПИИЦ (Russia)</b> = <b>3.939</b>	<b>PIF (India)</b> = <b>1.940</b>
<b>GIF (Australia)</b> = <b>0.564</b>	<b>ESJI (KZ)</b> = <b>8.771</b>	<b>IBI (India)</b> = <b>4.260</b>
<b>JIF</b> = <b>1.500</b>	<b>SJIF (Morocco)</b> = <b>7.184</b>	<b>OAJI (USA)</b> = <b>0.350</b>

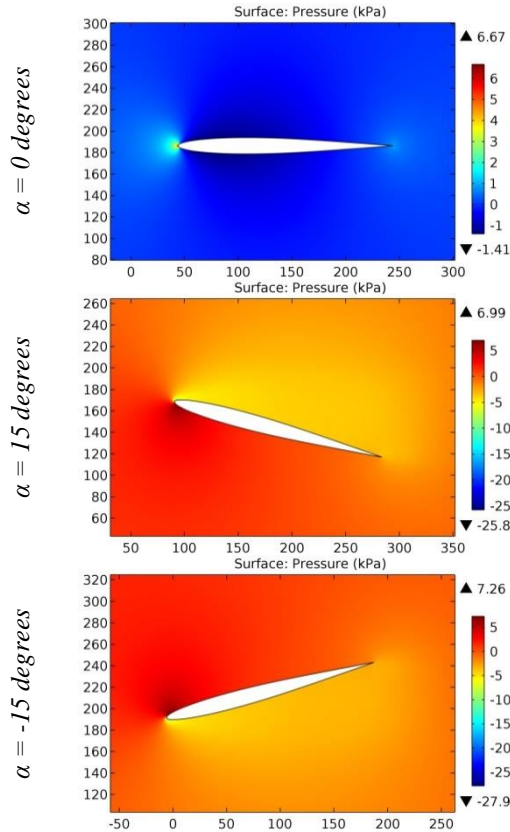


Figure 17. The pressure contours on the surfaces of the RAF 30 MOD airfoil.

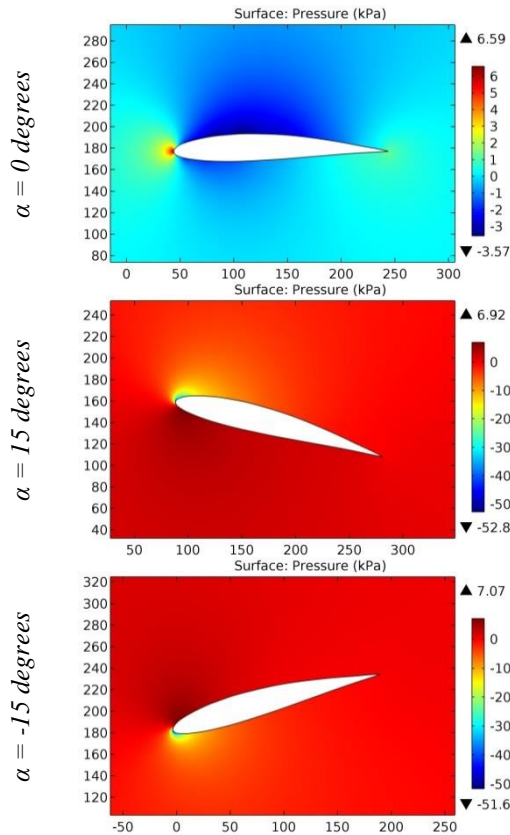
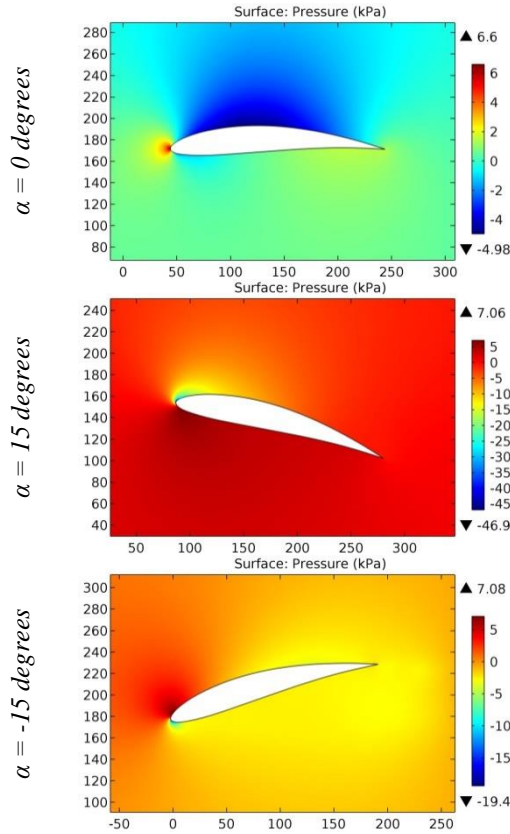


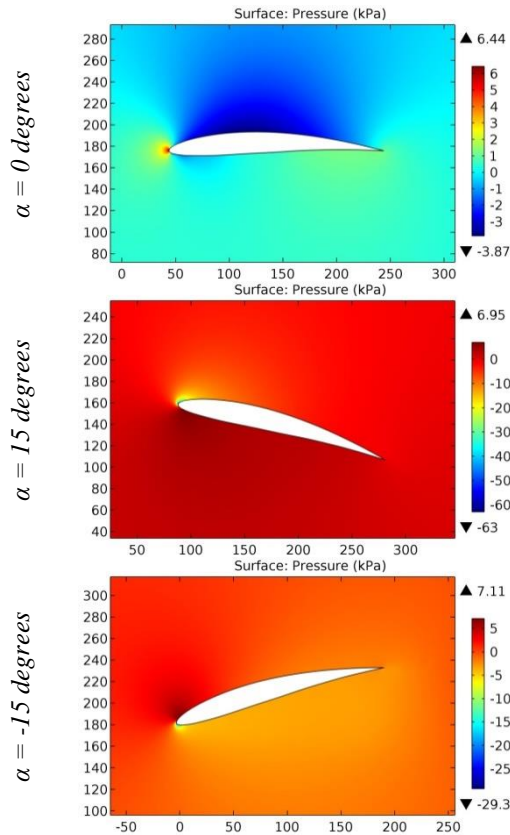
Figure 18. The pressure contours on the surfaces of the RAF 31 airfoil.

**Impact Factor:**

<b>ISRA (India)</b> = <b>6.317</b>	<b>SIS (USA)</b> = <b>0.912</b>	<b>ICV (Poland)</b> = <b>6.630</b>
<b>ISI (Dubai, UAE)</b> = <b>1.582</b>	<b>ПИИЦ (Russia)</b> = <b>3.939</b>	<b>PIF (India)</b> = <b>1.940</b>
<b>GIF (Australia)</b> = <b>0.564</b>	<b>ESJI (KZ)</b> = <b>8.771</b>	<b>IBI (India)</b> = <b>4.260</b>
<b>JIF</b> = <b>1.500</b>	<b>SJIF (Morocco)</b> = <b>7.184</b>	<b>OAJI (USA)</b> = <b>0.350</b>



**Figure 19.** The pressure contours on the surfaces of the RAF 32 airfoil.



**Figure 20.** The pressure contours on the surfaces of the RAF 32 MOD airfoil.



**Impact Factor:**

<b>SISRA</b> (India) = <b>6.317</b>	<b>SIS</b> (USA) = <b>0.912</b>	<b>ICV</b> (Poland) = <b>6.630</b>
<b>ISI</b> (Dubai, UAE) = <b>1.582</b>	<b>ПИИЦ</b> (Russia) = <b>3.939</b>	<b>PIF</b> (India) = <b>1.940</b>
<b>GIF</b> (Australia) = <b>0.564</b>	<b>ESJI</b> (KZ) = <b>8.771</b>	<b>IBI</b> (India) = <b>4.260</b>
<b>JIF</b> = <b>1.500</b>	<b>SJIF</b> (Morocco) = <b>7.184</b>	<b>OAJI</b> (USA) = <b>0.350</b>

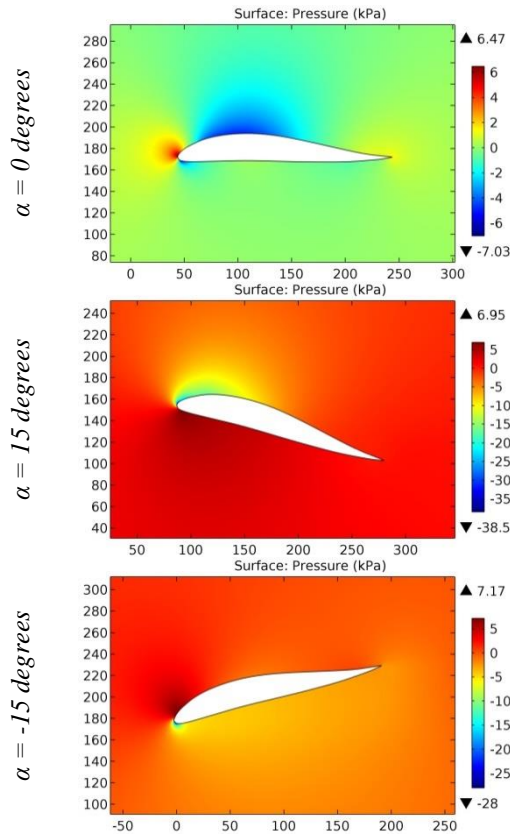


Figure 21. The pressure contours on the surfaces of the RAF 33 airfoil.

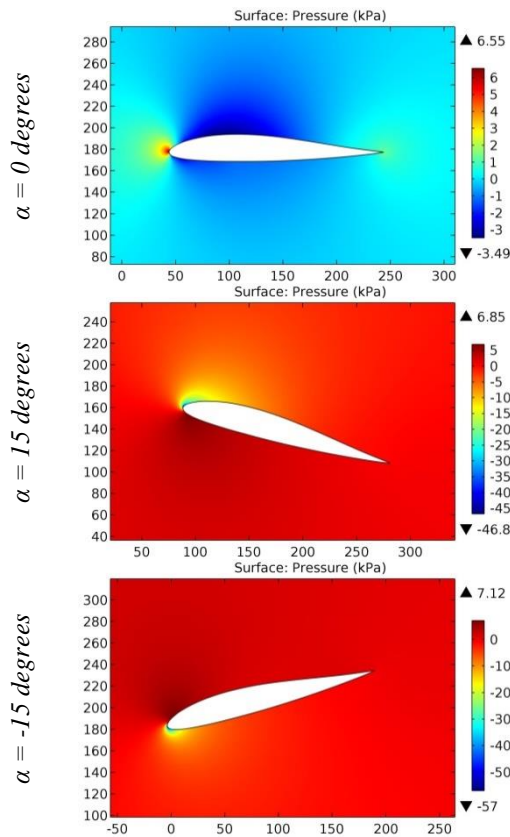


Figure 22. The pressure contours on the surfaces of the RAF 34 airfoil.

**Impact Factor:**

ISRA (India) = 6.317	SIS (USA) = 0.912	ICV (Poland) = 6.630
ISI (Dubai, UAE) = 1.582	ПИИЦ (Russia) = 3.939	PIF (India) = 1.940
GIF (Australia) = 0.564	ESJI (KZ) = 8.771	IBI (India) = 4.260
JIF = 1.500	SJIF (Morocco) = 7.184	OAJI (USA) = 0.350

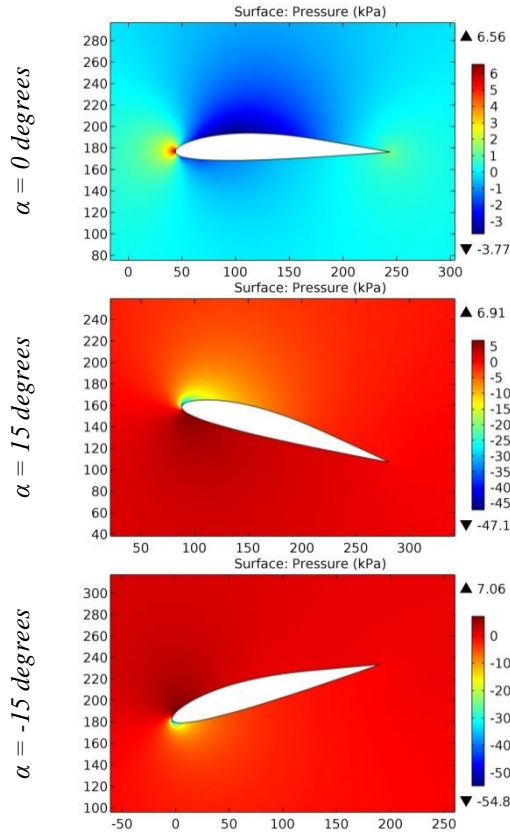


Figure 23. The pressure contours on the surfaces of the RAF 38 airfoil.

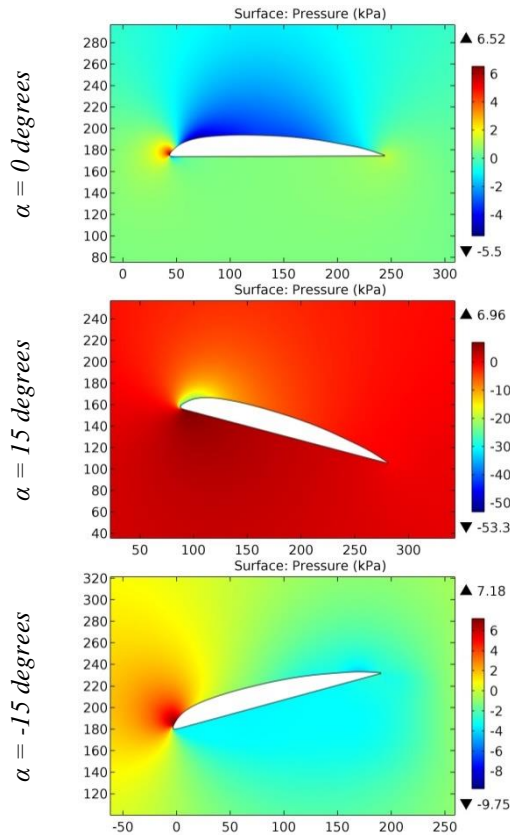
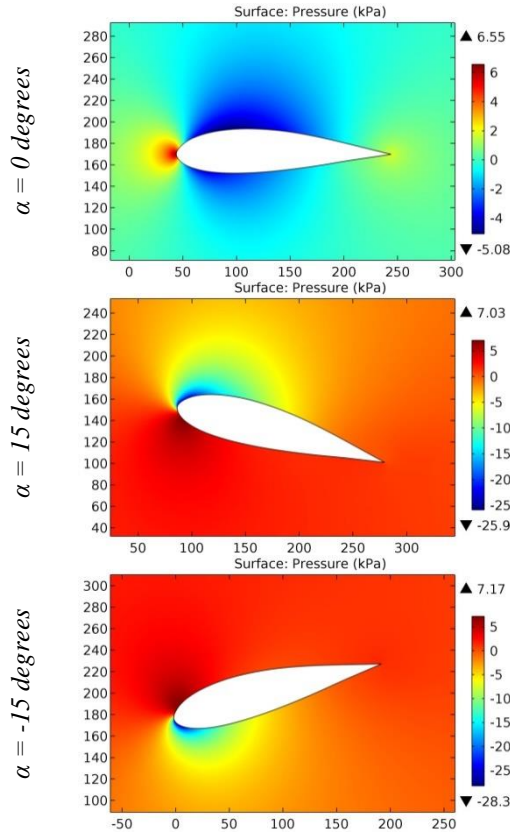


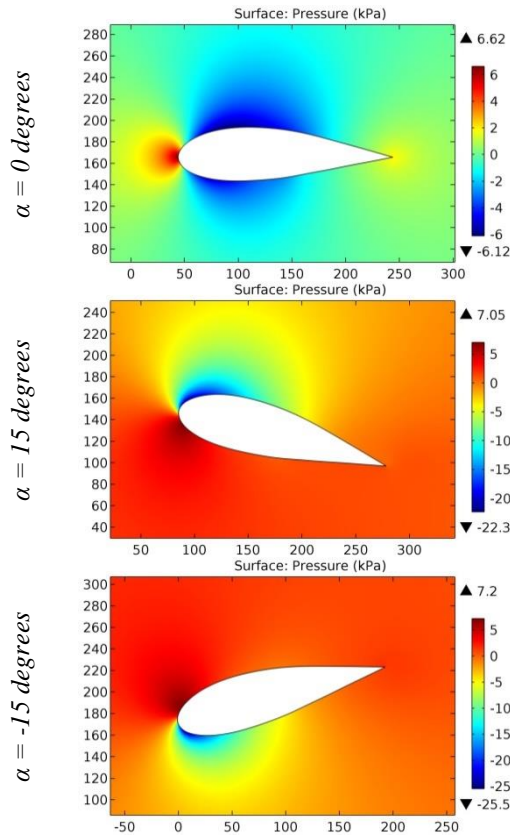
Figure 24. The pressure contours on the surfaces of the RAF 6 airfoil.

**Impact Factor:**

<b>ISRA (India)</b>	<b>= 6.317</b>	<b>SIS (USA)</b>	<b>= 0.912</b>	<b>ICV (Poland)</b>	<b>= 6.630</b>
<b>ISI (Dubai, UAE)</b>	<b>= 1.582</b>	<b>ПИИЦ (Russia)</b>	<b>= 3.939</b>	<b>PIF (India)</b>	<b>= 1.940</b>
<b>GIF (Australia)</b>	<b>= 0.564</b>	<b>ESJI (KZ)</b>	<b>= 8.771</b>	<b>IBI (India)</b>	<b>= 4.260</b>
<b>JIF</b>	<b>= 1.500</b>	<b>SJIF (Morocco)</b>	<b>= 7.184</b>	<b>OAJI (USA)</b>	<b>= 0.350</b>



**Figure 25. The pressure contours on the surfaces of the RAF 69 airfoil.**



**Figure 26. The pressure contours on the surfaces of the RAF 89 airfoil.**

**Impact Factor:**

<b>ISRA (India)</b> = <b>6.317</b>	<b>SIS (USA)</b> = <b>0.912</b>	<b>ICV (Poland)</b> = <b>6.630</b>
<b>ISI (Dubai, UAE)</b> = <b>1.582</b>	<b>ПИИЦ (Russia)</b> = <b>3.939</b>	<b>PIF (India)</b> = <b>1.940</b>
<b>GIF (Australia)</b> = <b>0.564</b>	<b>ESJI (KZ)</b> = <b>8.771</b>	<b>IBI (India)</b> = <b>4.260</b>
<b>JIF</b> = <b>1.500</b>	<b>SJIF (Morocco)</b> = <b>7.184</b>	<b>OAJI (USA)</b> = <b>0.350</b>

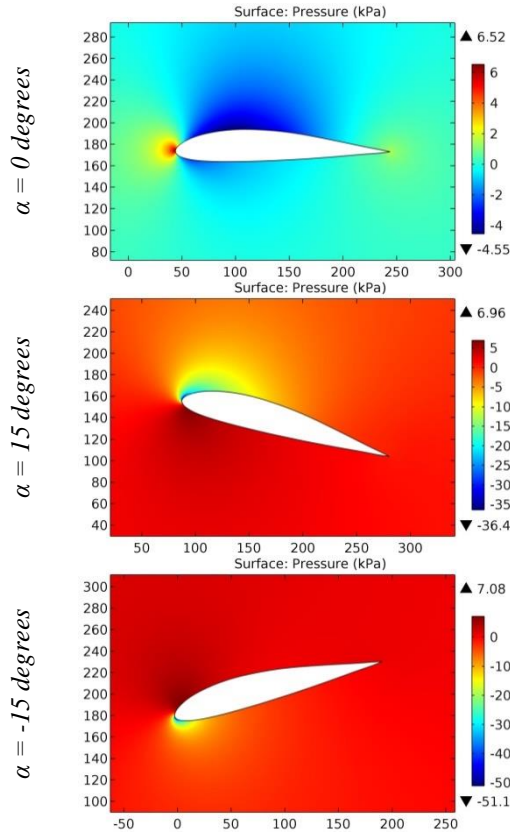


Figure 27. The pressure contours on the surfaces of the RAF-48 airfoil.

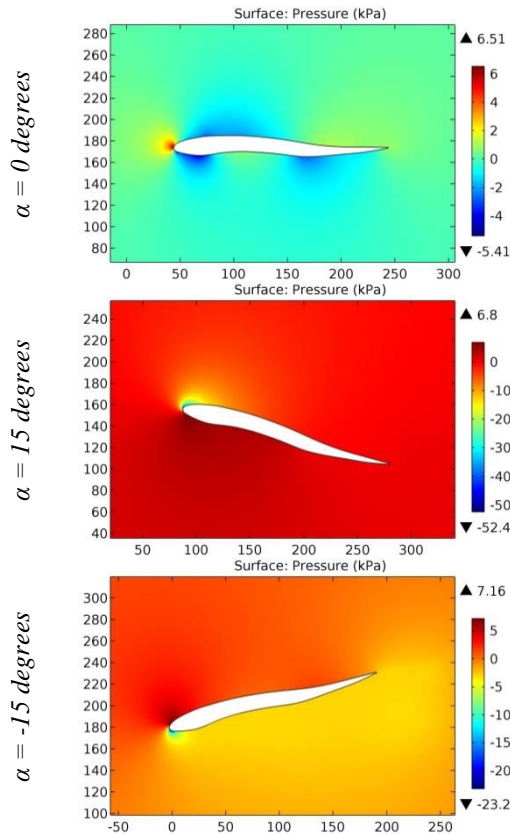


Figure 28. The pressure contours on the surfaces of the REFLEXS1 airfoil.

**Impact Factor:**

ISRA (India) = 6.317	SIS (USA) = 0.912	ICV (Poland) = 6.630
ISI (Dubai, UAE) = 1.582	ПИИЦ (Russia) = 3.939	PIF (India) = 1.940
GIF (Australia) = 0.564	ESJI (KZ) = 8.771	IBI (India) = 4.260
JIF = 1.500	SJIF (Morocco) = 7.184	OAJI (USA) = 0.350

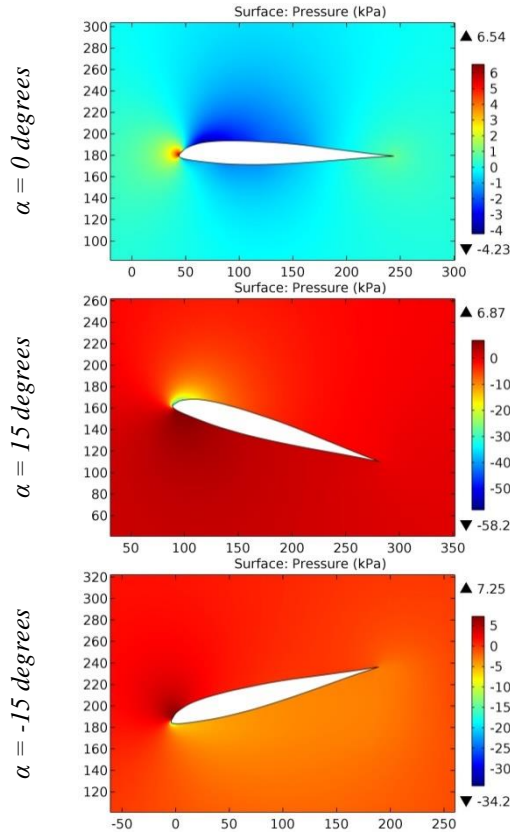


Figure 29. The pressure contours on the surfaces of the REPUBLIC S-3 airfoil.

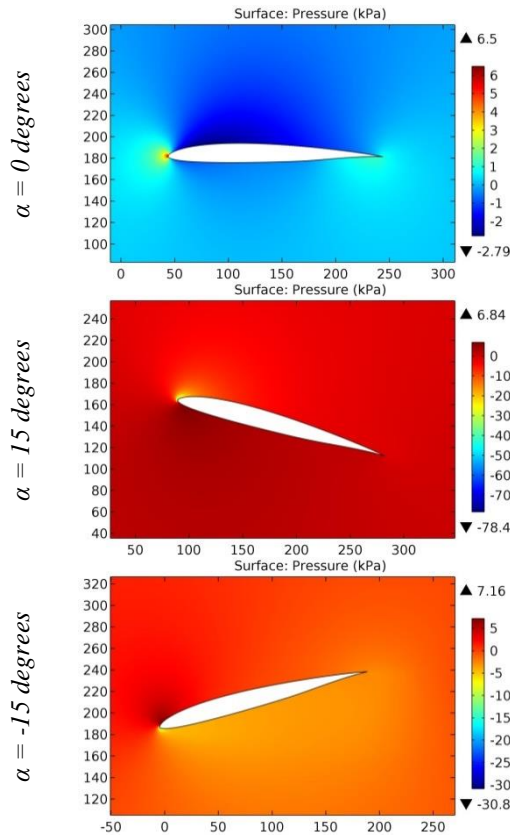


Figure 30. The pressure contours on the surfaces of the RG 12A-1,8-9,0 airfoil.



**Impact Factor:**

ISRA (India) = 6.317	SIS (USA) = 0.912	ICV (Poland) = 6.630
ISI (Dubai, UAE) = 1.582	ПИИЦ (Russia) = 3.939	PIF (India) = 1.940
GIF (Australia) = 0.564	ESJI (KZ) = 8.771	IBI (India) = 4.260
JIF = 1.500	SJIF (Morocco) = 7.184	OAJI (USA) = 0.350

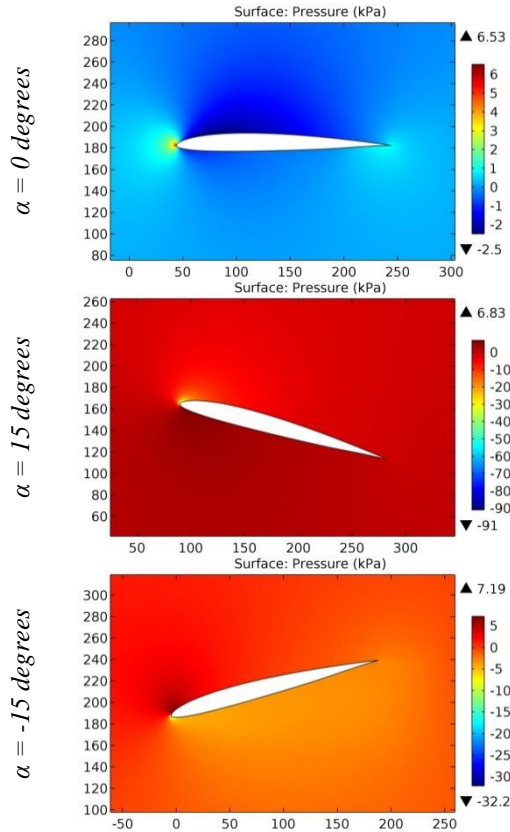


Figure 31. The pressure contours on the surfaces of the RG 14 airfoil.

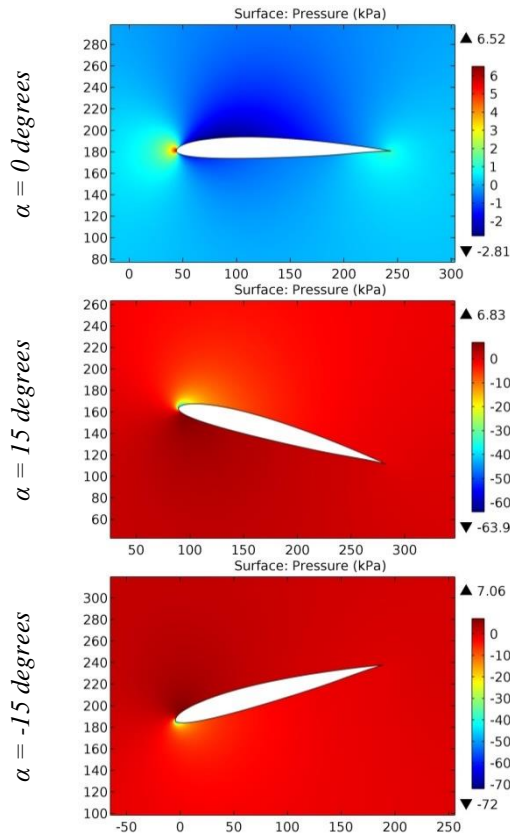


Figure 32. The pressure contours on the surfaces of the RG 14 10% airfoil.

**Impact Factor:**

ISRA (India) = 6.317	SIS (USA) = 0.912	ICV (Poland) = 6.630
ISI (Dubai, UAE) = 1.582	ПИИЦ (Russia) = 3.939	PIF (India) = 1.940
GIF (Australia) = 0.564	ESJI (KZ) = 8.771	IBI (India) = 4.260
JIF = 1.500	SJIF (Morocco) = 7.184	OAJI (USA) = 0.350

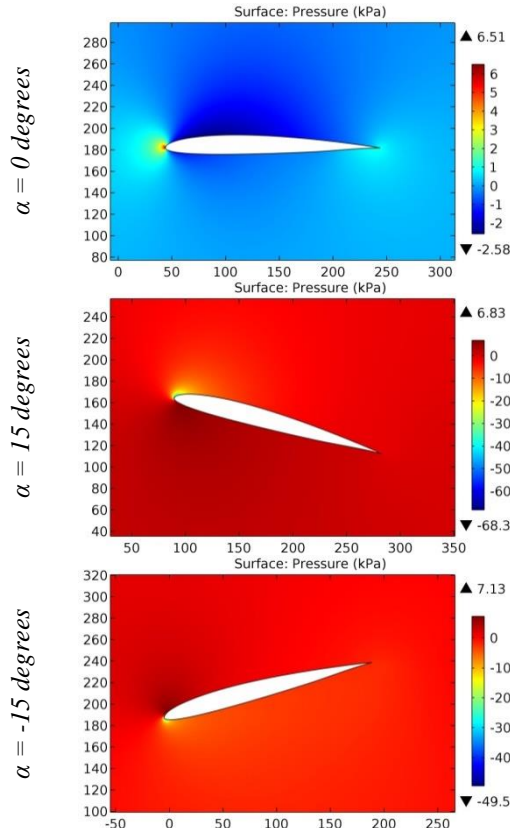


Figure 33. The pressure contours on the surfaces of the RG 14 9% airfoil.

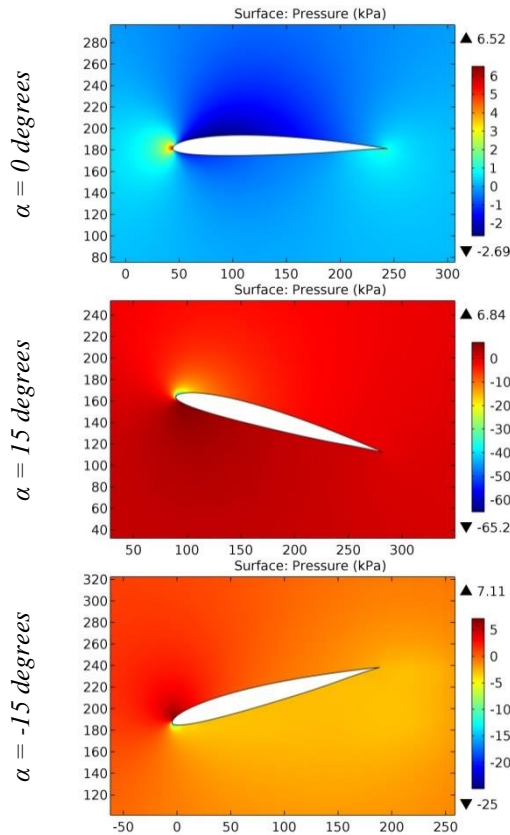


Figure 34. The pressure contours on the surfaces of the RG 14 9,5% airfoil.

**Impact Factor:**

ISRA (India) = 6.317	SIS (USA) = 0.912	ICV (Poland) = 6.630
ISI (Dubai, UAE) = 1.582	ПИИЦ (Russia) = 3.939	PIF (India) = 1.940
GIF (Australia) = 0.564	ESJI (KZ) = 8.771	IBI (India) = 4.260
JIF = 1.500	SJIF (Morocco) = 7.184	OAJI (USA) = 0.350

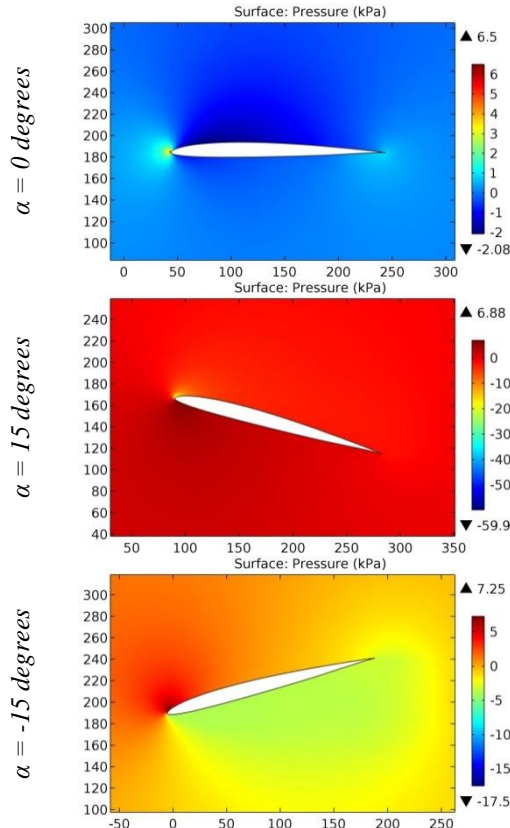


Figure 35. The pressure contours on the surfaces of the RG 14A-1,4-7,0 airfoil.

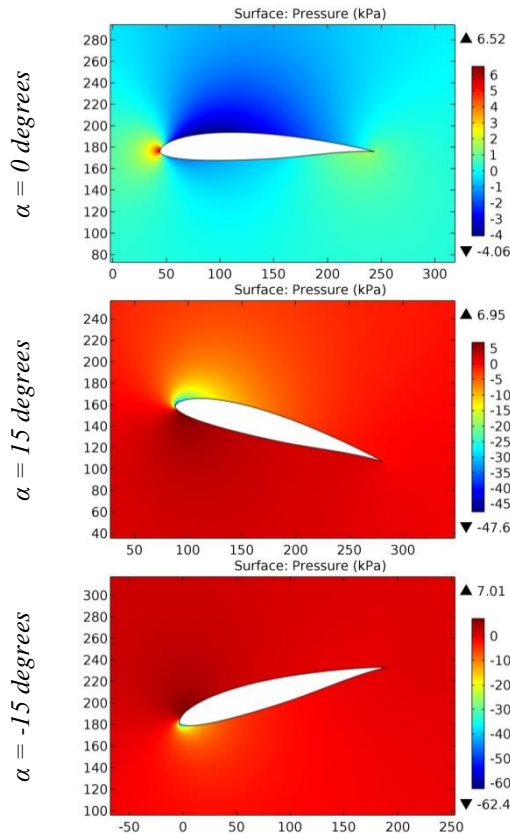


Figure 36. The pressure contours on the surfaces of the RG 15A 2,5-13,0 airfoil.

**Impact Factor:**

ISRA (India) = 6.317	SIS (USA) = 0.912	ICV (Poland) = 6.630
ISI (Dubai, UAE) = 1.582	ПИИЦ (Russia) = 3.939	PIF (India) = 1.940
GIF (Australia) = 0.564	ESJI (KZ) = 8.771	IBI (India) = 4.260
JIF = 1.500	SJIF (Morocco) = 7.184	OAJI (USA) = 0.350

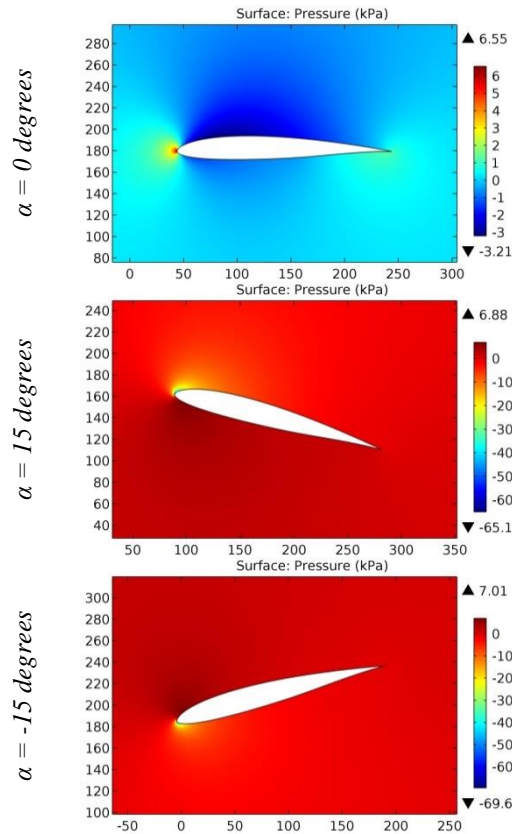


Figure 37. The pressure contours on the surfaces of the RG 15A-1,8-11,0 airfoil.

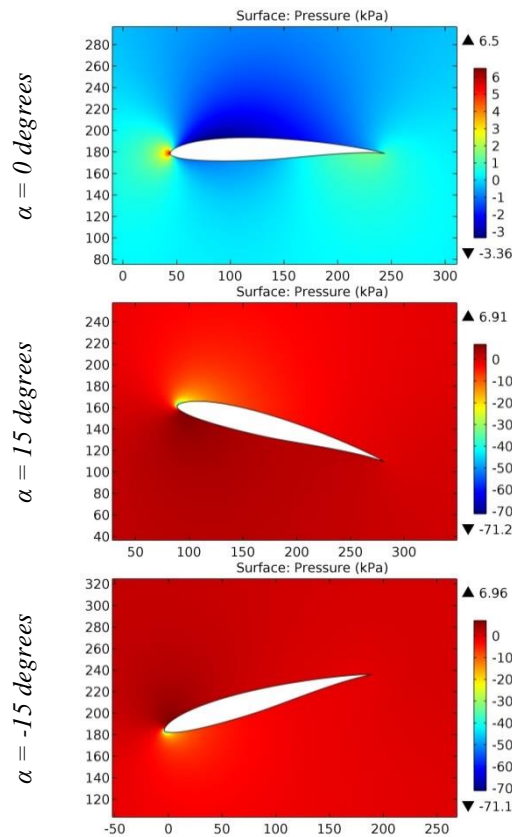
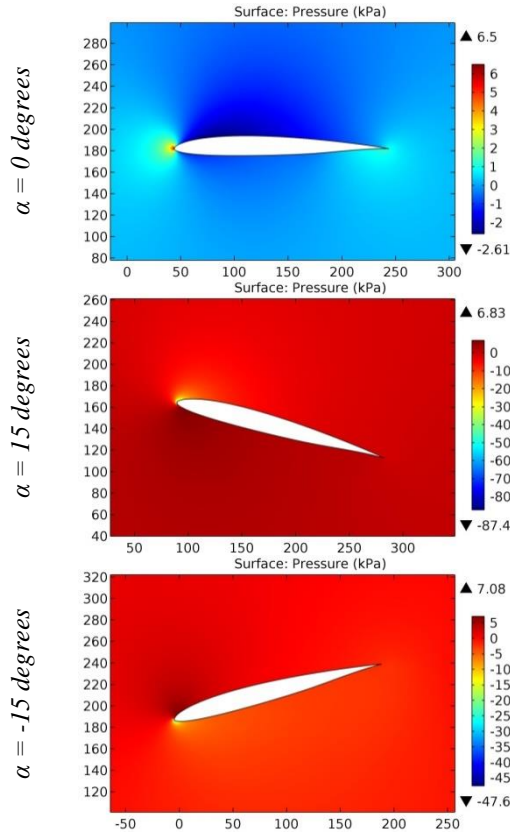


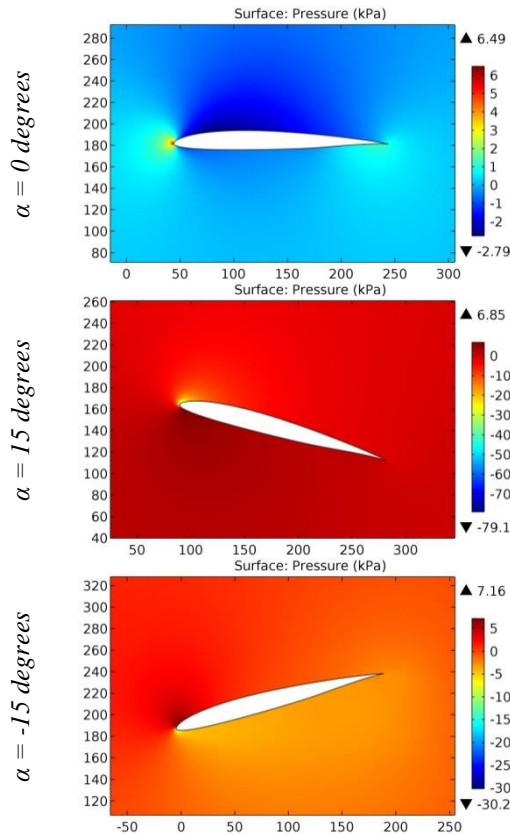
Figure 38. The pressure contours on the surfaces of the RG 8 airfoil.

**Impact Factor:**

<b>ISRA (India)</b> = <b>6.317</b>	<b>SIS (USA)</b> = <b>0.912</b>	<b>ICV (Poland)</b> = <b>6.630</b>
<b>ISI (Dubai, UAE)</b> = <b>1.582</b>	<b>ПИИЦ (Russia)</b> = <b>3.939</b>	<b>PIF (India)</b> = <b>1.940</b>
<b>GIF (Australia)</b> = <b>0.564</b>	<b>ESJI (KZ)</b> = <b>8.771</b>	<b>IBI (India)</b> = <b>4.260</b>
<b>JIF</b> = <b>1.500</b>	<b>SJIF (Morocco)</b> = <b>7.184</b>	<b>OAJI (USA)</b> = <b>0.350</b>



**Figure 39.** The pressure contours on the surfaces of the RG-12 airfoil.



**Figure 40.** The pressure contours on the surfaces of the RG-12A airfoil.



**Impact Factor:**

ISRA (India) = 6.317	SIS (USA) = 0.912	ICV (Poland) = 6.630
ISI (Dubai, UAE) = 1.582	ПИИЦ (Russia) = 3.939	PIF (India) = 1.940
GIF (Australia) = 0.564	ESJI (KZ) = 8.771	IBI (India) = 4.260
JIF = 1.500	SJIF (Morocco) = 7.184	OAJI (USA) = 0.350

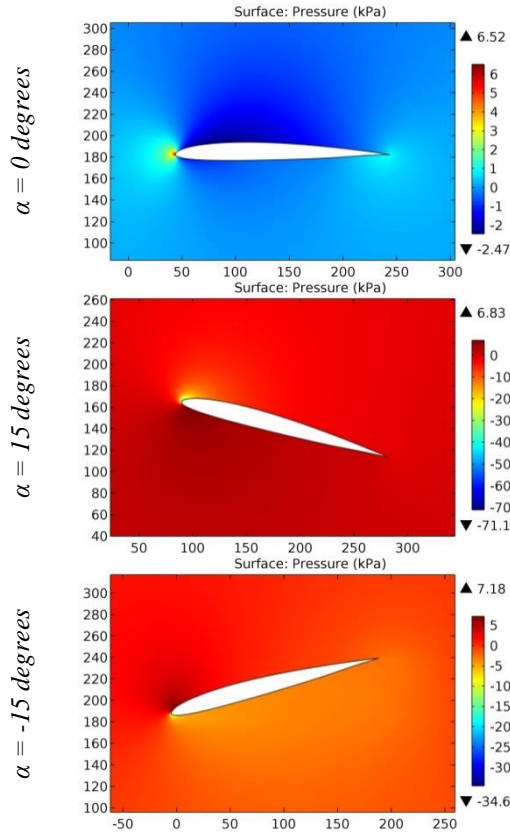


Figure 41. The pressure contours on the surfaces of the RG-14 airfoil.

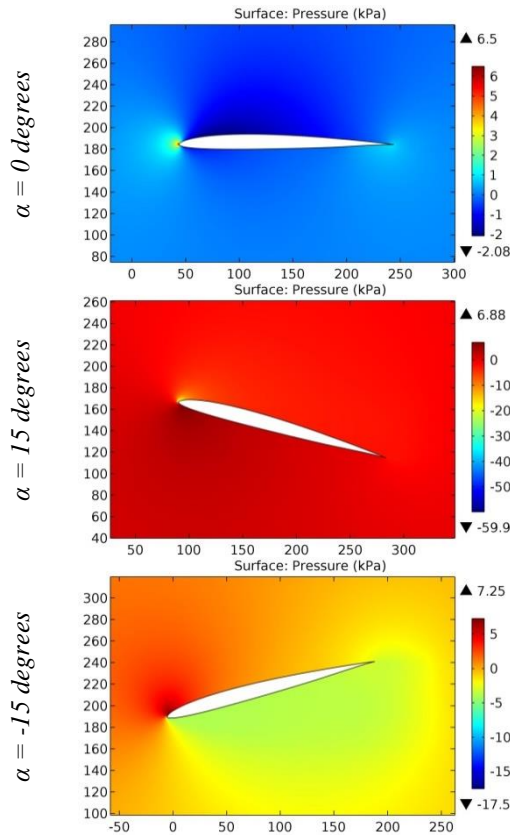


Figure 42. The pressure contours on the surfaces of the RG14A147 airfoil.

**Impact Factor:**

ISRA (India) = 6.317	SIS (USA) = 0.912	ICV (Poland) = 6.630
ISI (Dubai, UAE) = 1.582	ПИИЦ (Russia) = 3.939	PIF (India) = 1.940
GIF (Australia) = 0.564	ESJI (KZ) = 8.771	IBI (India) = 4.260
JIF = 1.500	SJIF (Morocco) = 7.184	OAJI (USA) = 0.350

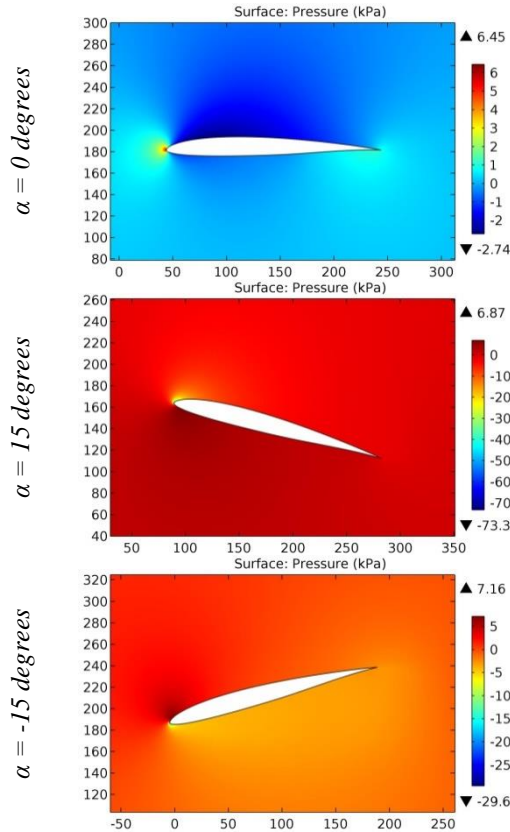


Figure 43. The pressure contours on the surfaces of the RG-15 airfoil.

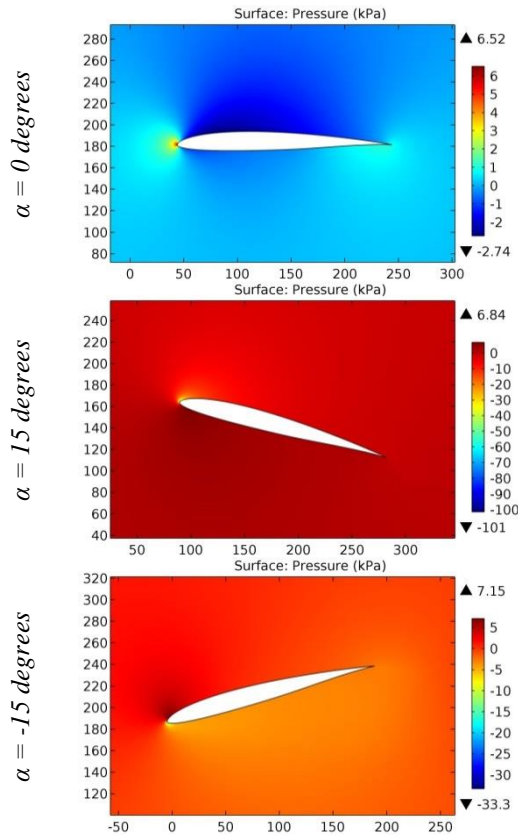


Figure 44. The pressure contours on the surfaces of the RG-15 8,9% airfoil.

**Impact Factor:**

ISRA (India) = 6.317	SIS (USA) = 0.912	ICV (Poland) = 6.630
ISI (Dubai, UAE) = 1.582	ПИИЦ (Russia) = 3.939	PIF (India) = 1.940
GIF (Australia) = 0.564	ESJI (KZ) = 8.771	IBI (India) = 4.260
JIF = 1.500	SJIF (Morocco) = 7.184	OAJI (USA) = 0.350

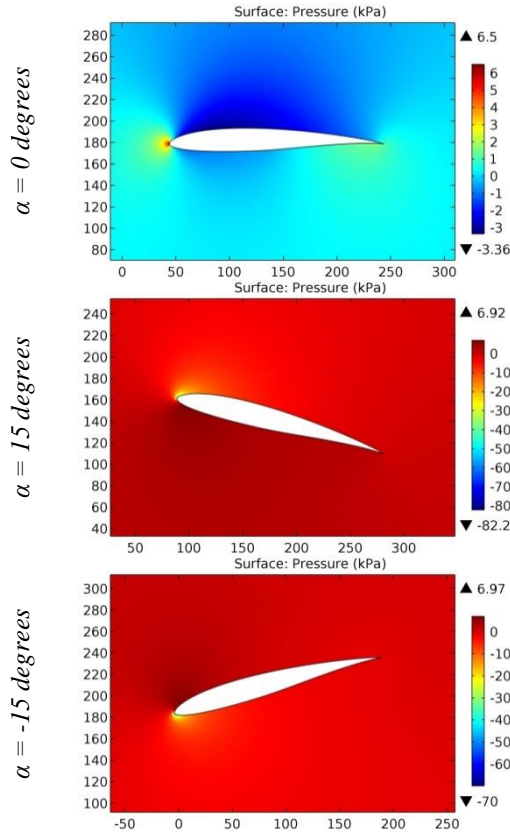


Figure 45. The pressure contours on the surfaces of the RG-8 airfoil.

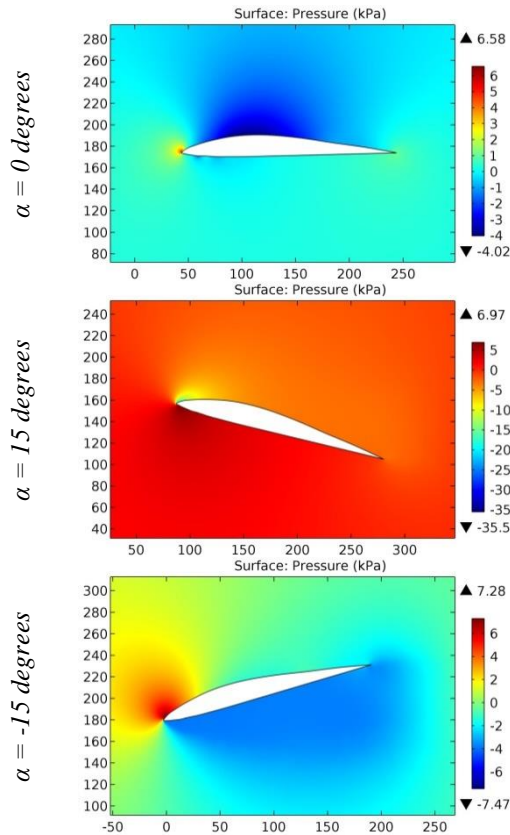


Figure 46. The pressure contours on the surfaces of the Rhode St Genese 26 airfoil.

**Impact Factor:**

ISRA (India) = 6.317	SIS (USA) = 0.912	ICV (Poland) = 6.630
ISI (Dubai, UAE) = 1.582	ПИИЦ (Russia) = 3.939	PIF (India) = 1.940
GIF (Australia) = 0.564	ESJI (KZ) = 8.771	IBI (India) = 4.260
JIF = 1.500	SJIF (Morocco) = 7.184	OAJI (USA) = 0.350

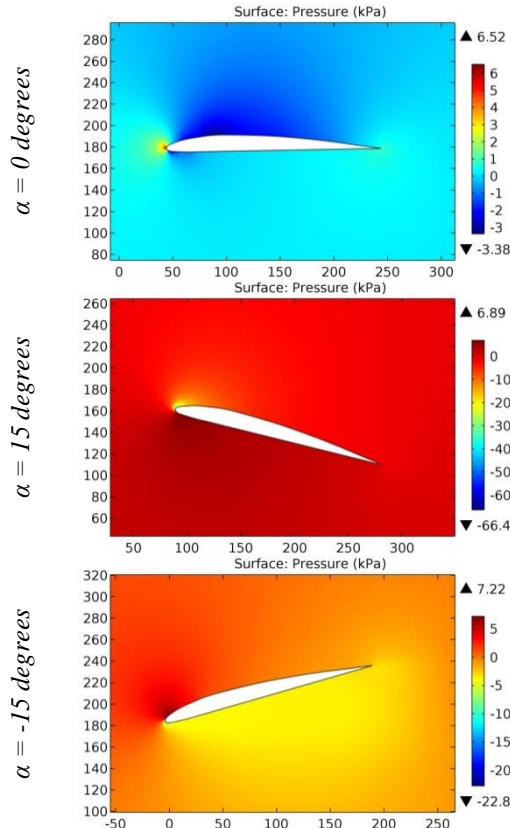


Figure 47. The pressure contours on the surfaces of the Rhode St Genese 28 airfoil.

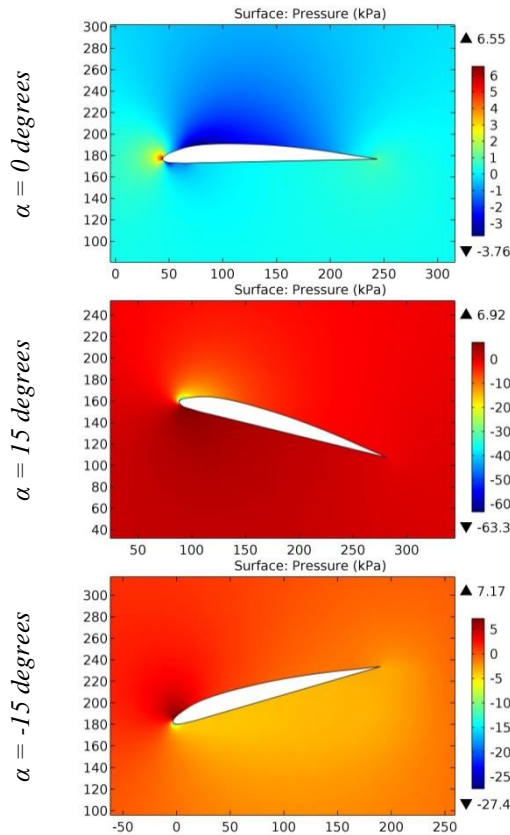


Figure 48. The pressure contours on the surfaces of the Rhode St Genese 29 airfoil.

**Impact Factor:**

ISRA (India) = 6.317	SIS (USA) = 0.912	ICV (Poland) = 6.630
ISI (Dubai, UAE) = 1.582	ПИИЦ (Russia) = 3.939	PIF (India) = 1.940
GIF (Australia) = 0.564	ESJI (KZ) = 8.771	IBI (India) = 4.260
JIF = 1.500	SJIF (Morocco) = 7.184	OAJI (USA) = 0.350

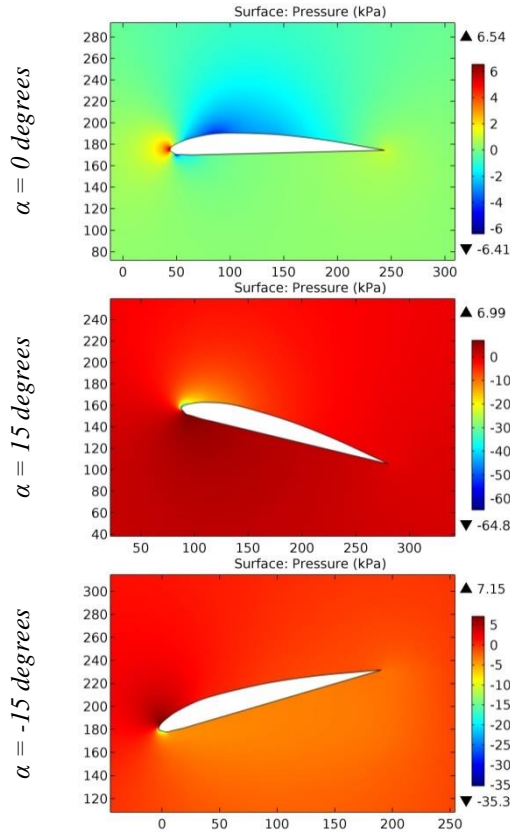


Figure 49. The pressure contours on the surfaces of the Rhode St Genese 30 airfoil.

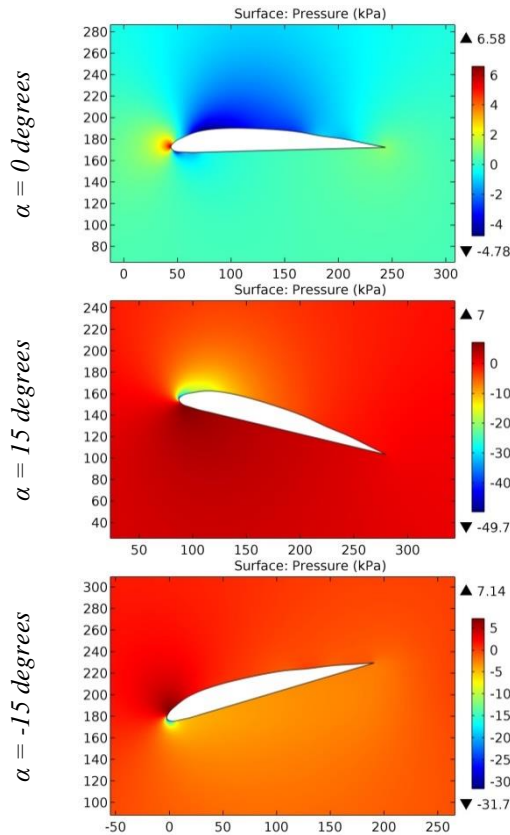


Figure 50. The pressure contours on the surfaces of the Rhode St Genese 31 airfoil.



**Impact Factor:**

ISRA (India) = 6.317	SIS (USA) = 0.912	ICV (Poland) = 6.630
ISI (Dubai, UAE) = 1.582	ПИИЦ (Russia) = 3.939	PIF (India) = 1.940
GIF (Australia) = 0.564	ESJI (KZ) = 8.771	IBI (India) = 4.260
JIF = 1.500	SJIF (Morocco) = 7.184	OAJI (USA) = 0.350

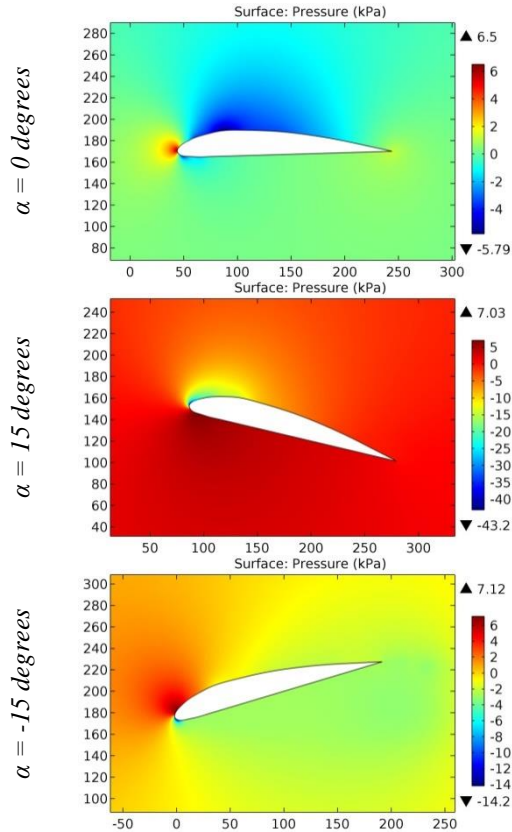


Figure 51. The pressure contours on the surfaces of the Rhode St Genese 32 airfoil.

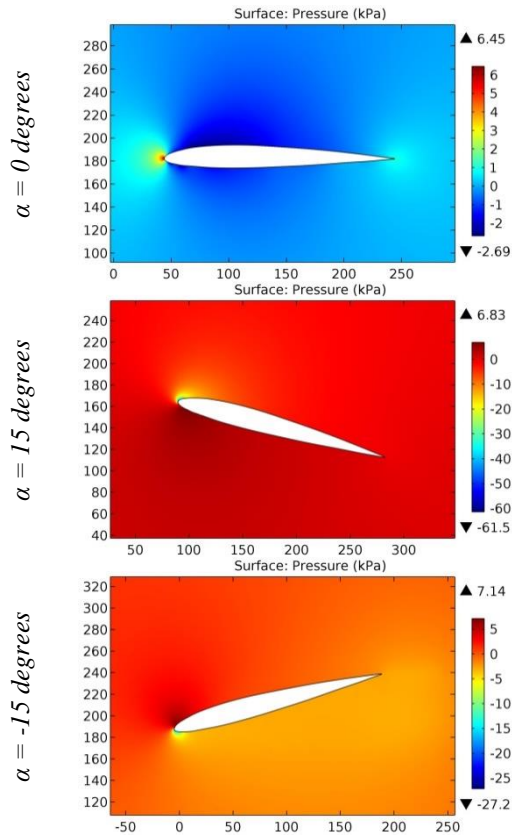


Figure 52. The pressure contours on the surfaces of the Ritz 1-30-10 airfoil.

**Impact Factor:**

ISRA (India) = 6.317	SIS (USA) = 0.912	ICV (Poland) = 6.630
ISI (Dubai, UAE) = 1.582	ПИИЦ (Russia) = 3.939	PIF (India) = 1.940
GIF (Australia) = 0.564	ESJI (KZ) = 8.771	IBI (India) = 4.260
JIF = 1.500	SJIF (Morocco) = 7.184	OAJI (USA) = 0.350

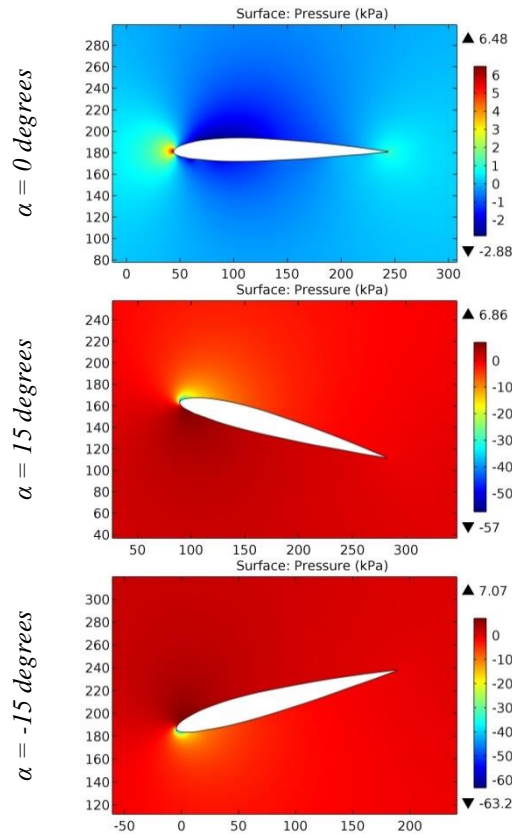


Figure 53. The pressure contours on the surfaces of the Ritz 1-30-11 airfoil.

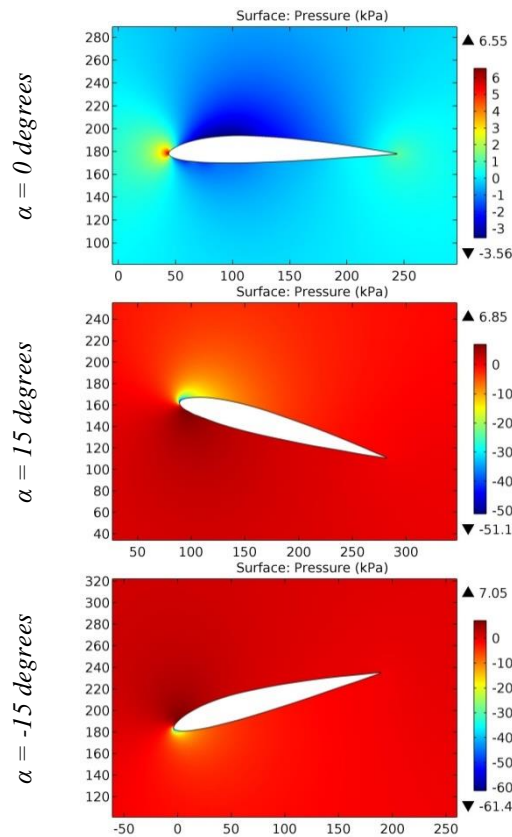


Figure 54. The pressure contours on the surfaces of the Ritz 1-30-12 airfoil.

**Impact Factor:**

<b>ISRA</b> (India) = <b>6.317</b>	<b>SIS</b> (USA) = <b>0.912</b>	<b>ICV</b> (Poland) = <b>6.630</b>
<b>ISI</b> (Dubai, UAE) = <b>1.582</b>	<b>ПИИЦ</b> (Russia) = <b>3.939</b>	<b>PIF</b> (India) = <b>1.940</b>
<b>GIF</b> (Australia) = <b>0.564</b>	<b>ESJI</b> (KZ) = <b>8.771</b>	<b>IBI</b> (India) = <b>4.260</b>
<b>JIF</b> = <b>1.500</b>	<b>SJIF</b> (Morocco) = <b>7.184</b>	<b>OAJI</b> (USA) = <b>0.350</b>

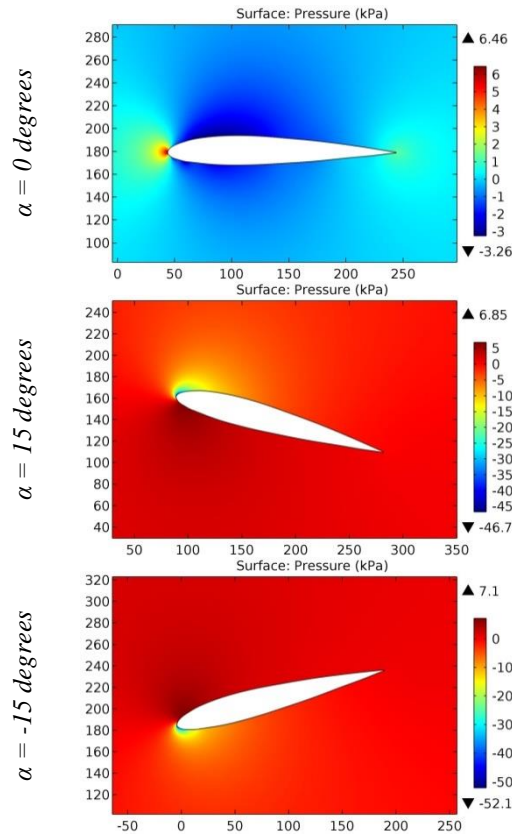


Figure 55. The pressure contours on the surfaces of the Ritz 1-30-13 airfoil.

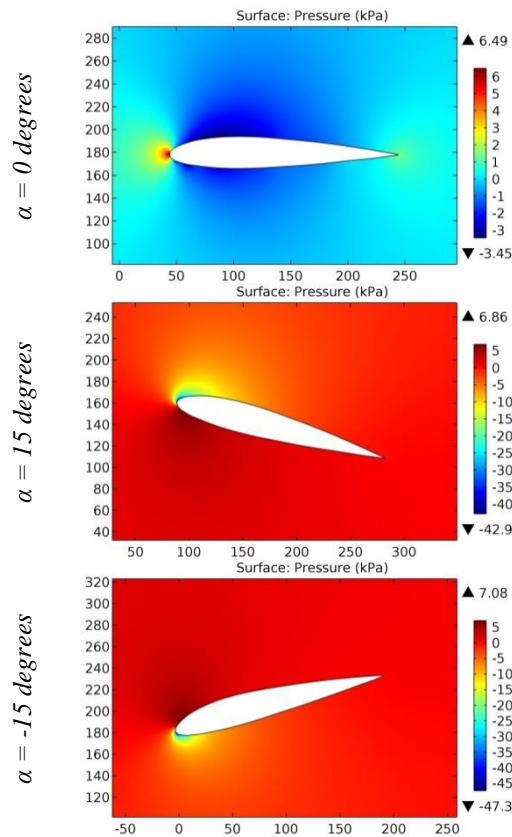


Figure 56. The pressure contours on the surfaces of the Ritz 1-30-14 airfoil.

**Impact Factor:**

<b>SISRA (India)</b>	<b>= 6.317</b>	<b>SIS (USA)</b>	<b>= 0.912</b>	<b>ICV (Poland)</b>	<b>= 6.630</b>
<b>ISI (Dubai, UAE)</b>	<b>= 1.582</b>	<b>ПИИЦ (Russia)</b>	<b>= 3.939</b>	<b>PIF (India)</b>	<b>= 1.940</b>
<b>GIF (Australia)</b>	<b>= 0.564</b>	<b>ESJI (KZ)</b>	<b>= 8.771</b>	<b>IBI (India)</b>	<b>= 4.260</b>
<b>JIF</b>	<b>= 1.500</b>	<b>SJIF (Morocco)</b>	<b>= 7.184</b>	<b>OAJI (USA)</b>	<b>= 0.350</b>

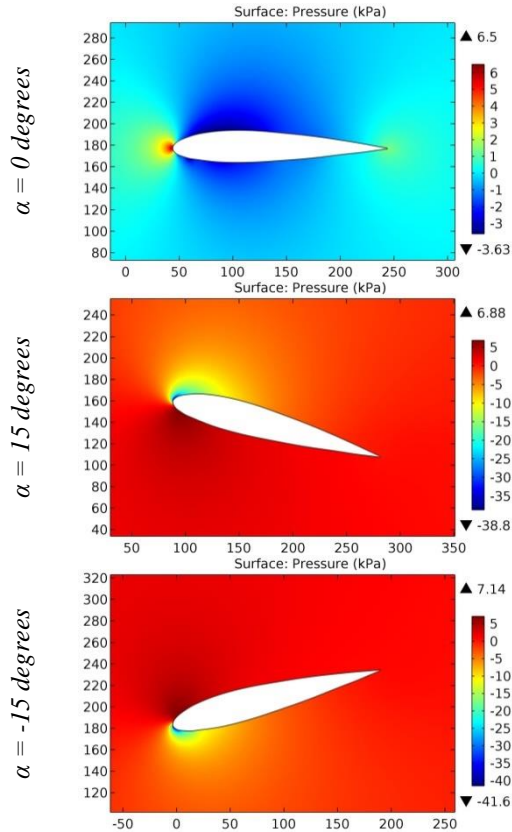


Figure 57. The pressure contours on the surfaces of the Ritz 1-30-15 airfoil.

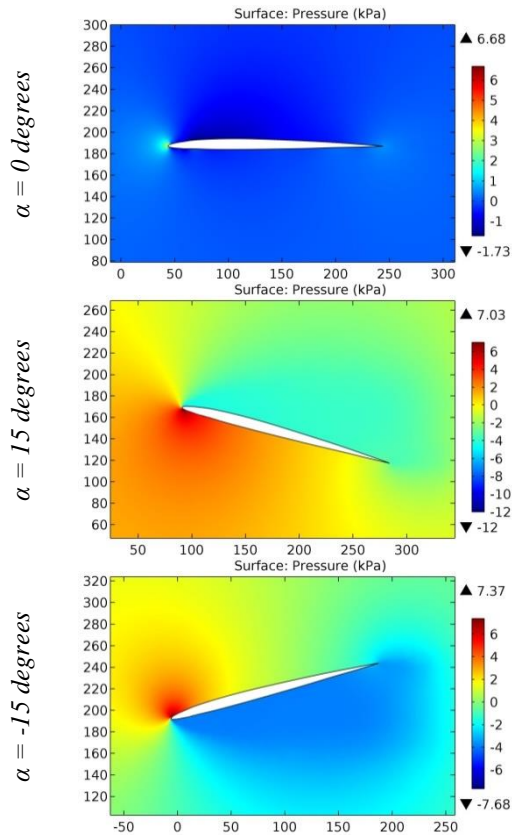


Figure 58. The pressure contours on the surfaces of the Ritz 1-30-5 airfoil.

**Impact Factor:**

ISRA (India) = 6.317	SIS (USA) = 0.912	ICV (Poland) = 6.630
ISI (Dubai, UAE) = 1.582	ПИИЦ (Russia) = 3.939	PIF (India) = 1.940
GIF (Australia) = 0.564	ESJI (KZ) = 8.771	IBI (India) = 4.260
JIF = 1.500	SJIF (Morocco) = 7.184	OAJI (USA) = 0.350

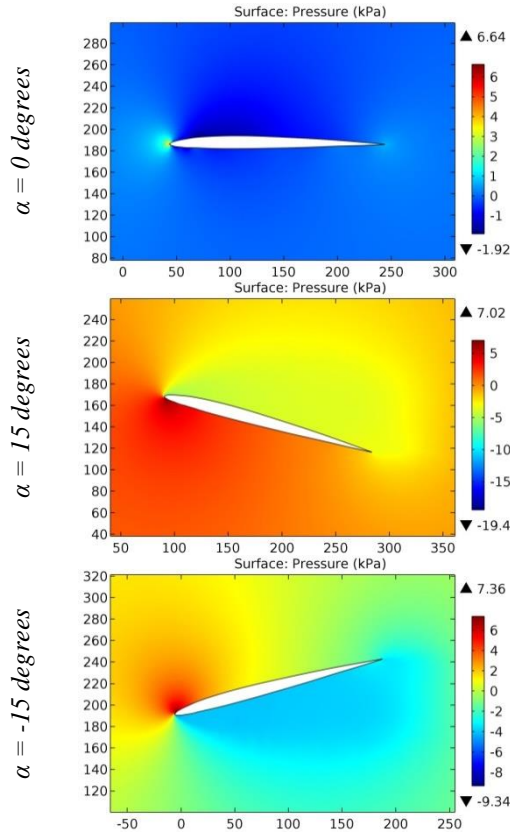


Figure 59. The pressure contours on the surfaces of the Ritz 1-30-6 airfoil.

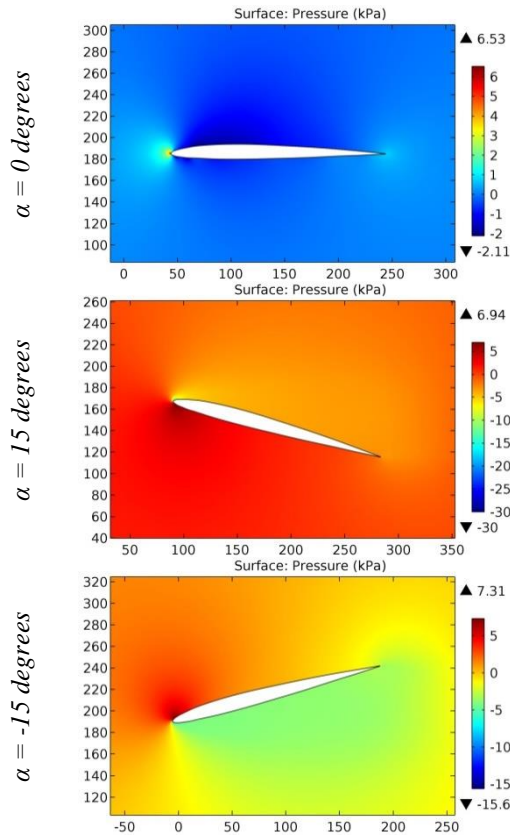


Figure 60. The pressure contours on the surfaces of the Ritz 1-30-7 airfoil.



**Impact Factor:**

ISRA (India) = 6.317	SIS (USA) = 0.912	ICV (Poland) = 6.630
ISI (Dubai, UAE) = 1.582	ПИИЦ (Russia) = 3.939	PIF (India) = 1.940
GIF (Australia) = 0.564	ESJI (KZ) = 8.771	IBI (India) = 4.260
JIF = 1.500	SJIF (Morocco) = 7.184	OAJI (USA) = 0.350

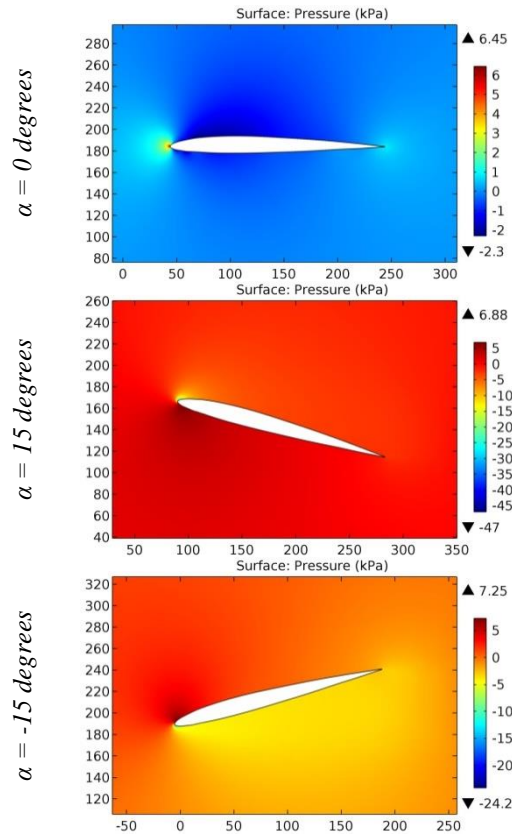


Figure 61. The pressure contours on the surfaces of the Ritz 1-30-8 airfoil.

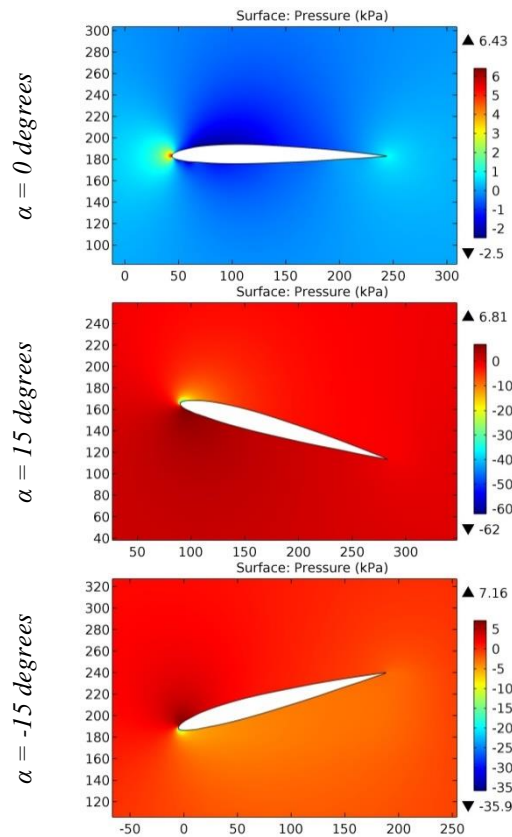


Figure 62. The pressure contours on the surfaces of the Ritz 1-30-9 airfoil.

**Impact Factor:**

ISRA (India) = 6.317	SIS (USA) = 0.912	ICV (Poland) = 6.630
ISI (Dubai, UAE) = 1.582	ПИИЦ (Russia) = 3.939	PIF (India) = 1.940
GIF (Australia) = 0.564	ESJI (KZ) = 8.771	IBI (India) = 4.260
JIF = 1.500	SJIF (Morocco) = 7.184	OAJI (USA) = 0.350

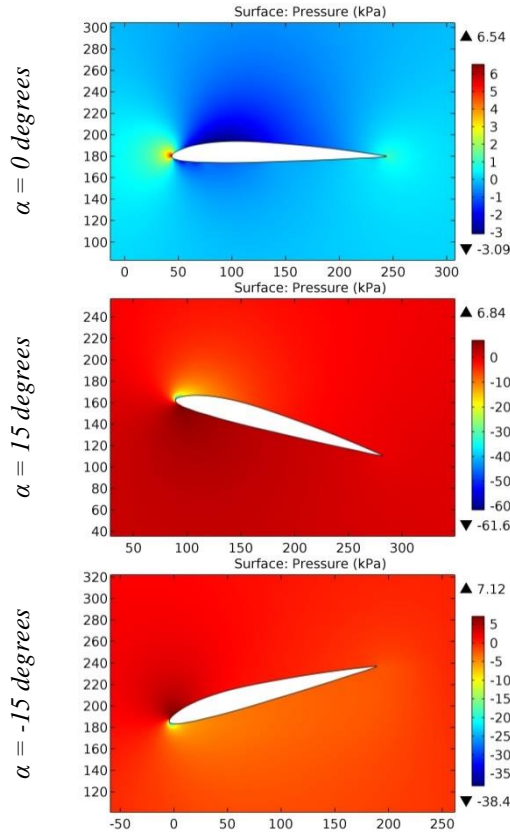


Figure 63. The pressure contours on the surfaces of the Ritz 2-30-10 airfoil.

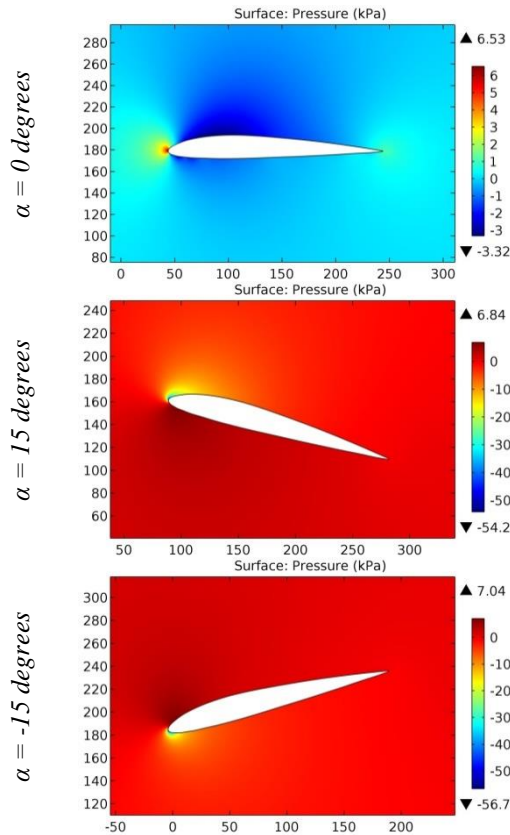


Figure 64. The pressure contours on the surfaces of the Ritz 2-30-11 airfoil.

**Impact Factor:**

<b>ISRA (India)</b> = <b>6.317</b>	<b>SIS (USA)</b> = <b>0.912</b>	<b>ICV (Poland)</b> = <b>6.630</b>
<b>ISI (Dubai, UAE)</b> = <b>1.582</b>	<b>ПИИЦ (Russia)</b> = <b>3.939</b>	<b>PIF (India)</b> = <b>1.940</b>
<b>GIF (Australia)</b> = <b>0.564</b>	<b>ESJI (KZ)</b> = <b>8.771</b>	<b>IBI (India)</b> = <b>4.260</b>
<b>JIF</b> = <b>1.500</b>	<b>SJIF (Morocco)</b> = <b>7.184</b>	<b>OAJI (USA)</b> = <b>0.350</b>

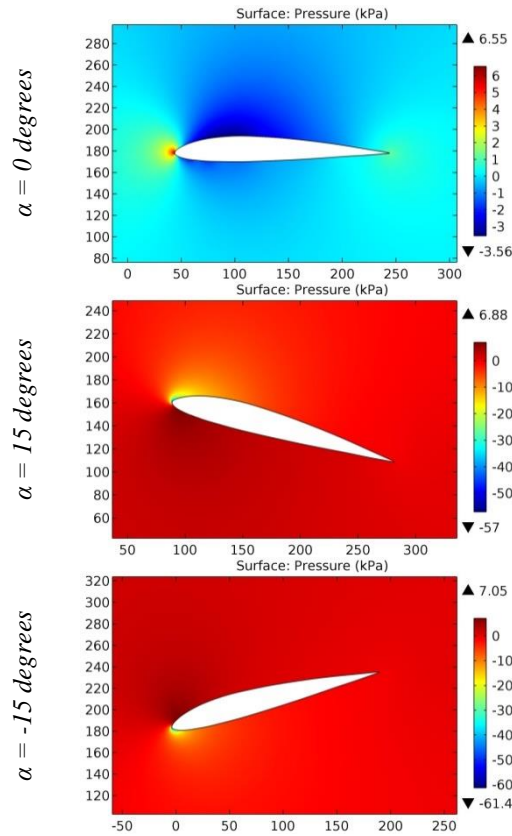


Figure 65. The pressure contours on the surfaces of the Ritz 2-30-12 airfoil.

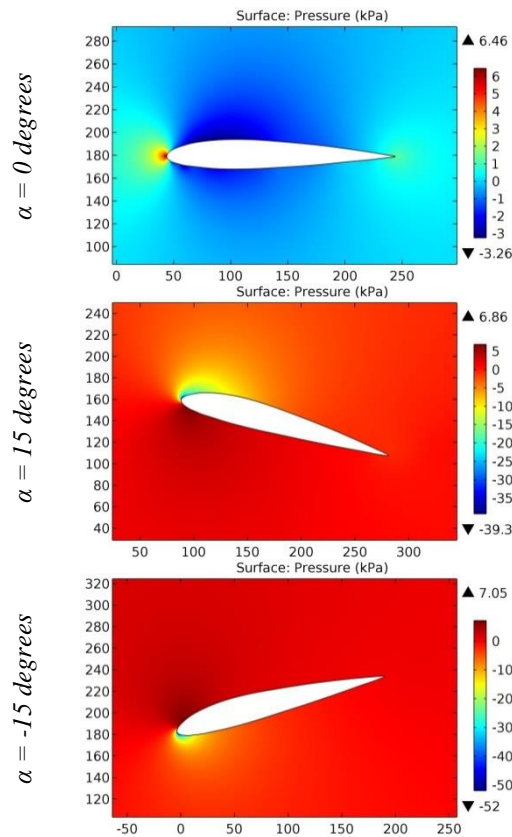
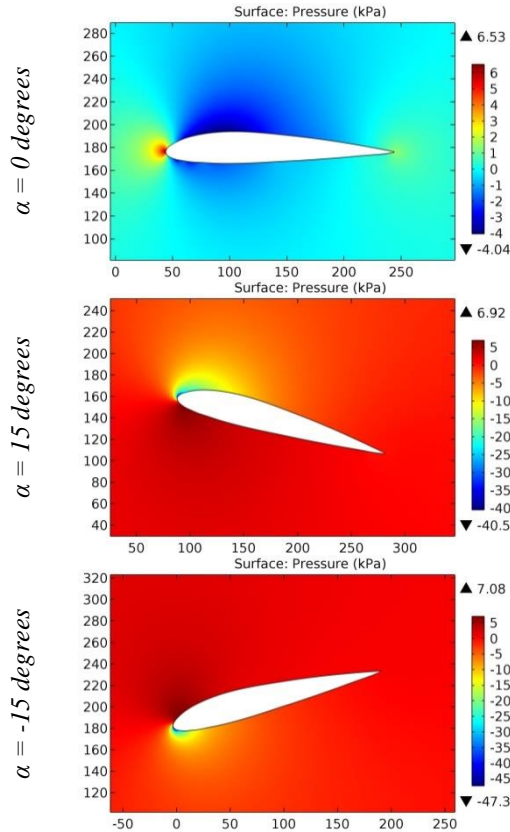


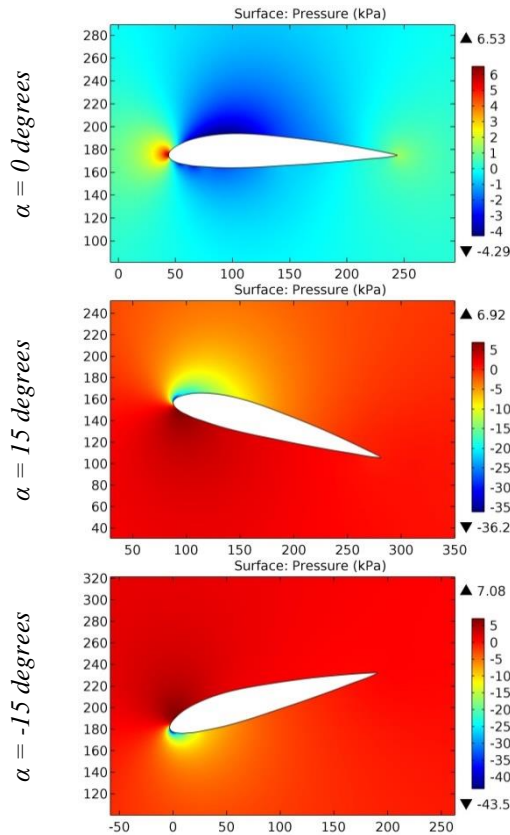
Figure 66. The pressure contours on the surfaces of the Ritz 2-30-13 airfoil.

**Impact Factor:**

<b>ISRA (India)</b> = <b>6.317</b>	<b>SIS (USA)</b> = <b>0.912</b>	<b>ICV (Poland)</b> = <b>6.630</b>
<b>ISI (Dubai, UAE)</b> = <b>1.582</b>	<b>ПИИЦ (Russia)</b> = <b>3.939</b>	<b>PIF (India)</b> = <b>1.940</b>
<b>GIF (Australia)</b> = <b>0.564</b>	<b>ESJI (KZ)</b> = <b>8.771</b>	<b>IBI (India)</b> = <b>4.260</b>
<b>JIF</b> = <b>1.500</b>	<b>SJIF (Morocco)</b> = <b>7.184</b>	<b>OAJI (USA)</b> = <b>0.350</b>



**Figure 67. The pressure contours on the surfaces of the Ritz 2-30-14 airfoil.**



**Figure 68. The pressure contours on the surfaces of the Ritz 2-30-15 airfoil.**

**Impact Factor:**

ISRA (India) = 6.317	SIS (USA) = 0.912	ICV (Poland) = 6.630
ISI (Dubai, UAE) = 1.582	ПИИЦ (Russia) = 3.939	PIF (India) = 1.940
GIF (Australia) = 0.564	ESJI (KZ) = 8.771	IBI (India) = 4.260
JIF = 1.500	SJIF (Morocco) = 7.184	OAJI (USA) = 0.350

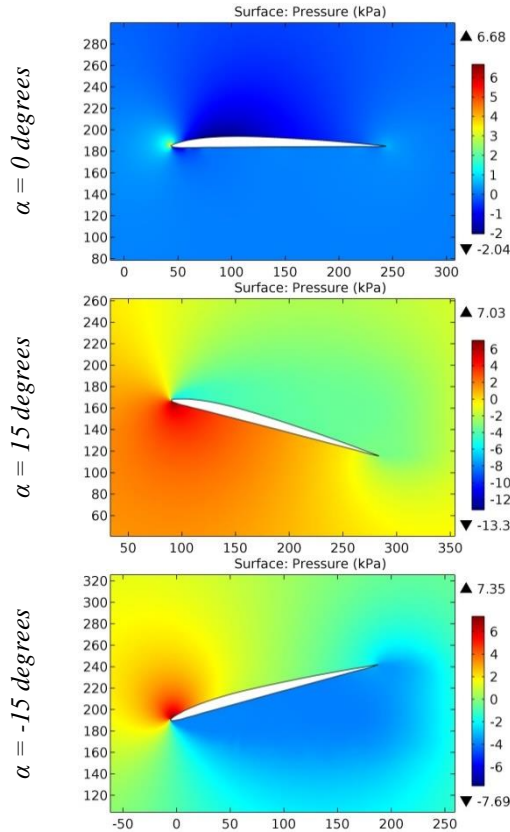


Figure 69. The pressure contours on the surfaces of the Ritz 2-30-5 airfoil.

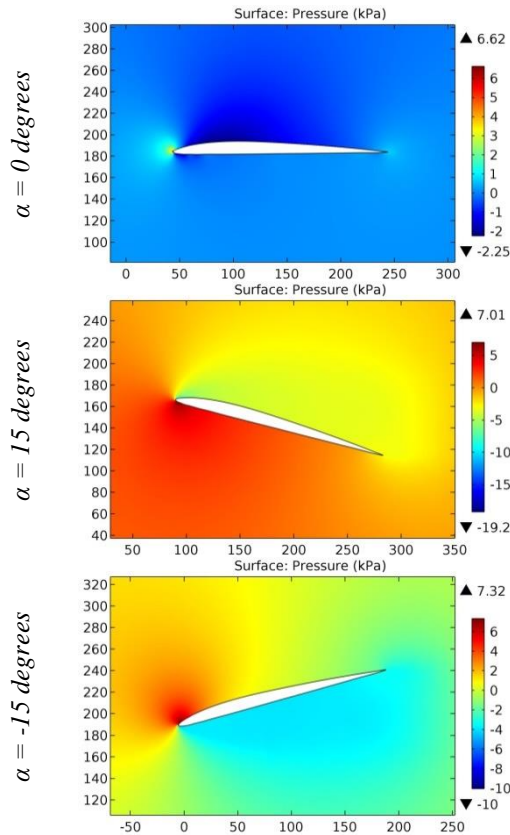


Figure 70. The pressure contours on the surfaces of the Ritz 2-30-6 airfoil.



**Impact Factor:**

<b>SISRA (India)</b>	<b>= 6.317</b>	<b>SIS (USA)</b>	<b>= 0.912</b>	<b>ICV (Poland)</b>	<b>= 6.630</b>
<b>ISI (Dubai, UAE)</b>	<b>= 1.582</b>	<b>ПИИЦ (Russia)</b>	<b>= 3.939</b>	<b>PIF (India)</b>	<b>= 1.940</b>
<b>GIF (Australia)</b>	<b>= 0.564</b>	<b>ESJI (KZ)</b>	<b>= 8.771</b>	<b>IBI (India)</b>	<b>= 4.260</b>
<b>JIF</b>	<b>= 1.500</b>	<b>SJIF (Morocco)</b>	<b>= 7.184</b>	<b>OAJI (USA)</b>	<b>= 0.350</b>

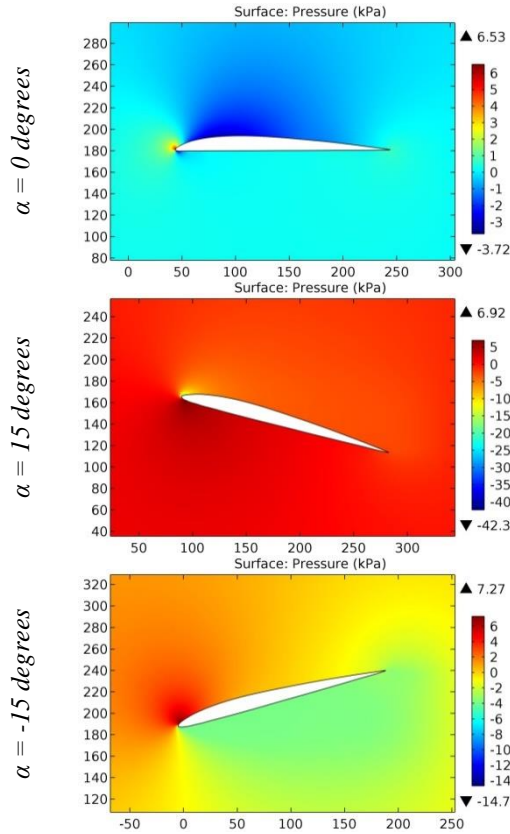


Figure 71. The pressure contours on the surfaces of the Ritz 2-30-7 airfoil.

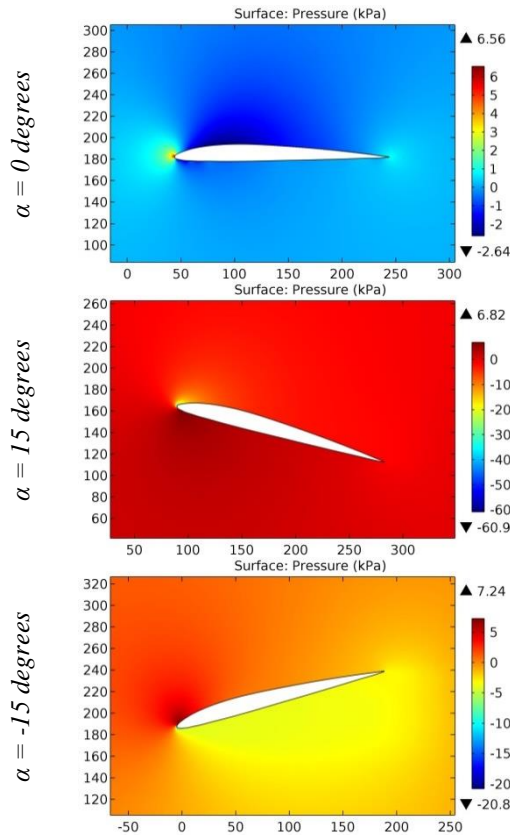


Figure 72. The pressure contours on the surfaces of the Ritz 2-30-8 airfoil.

**Impact Factor:**

ISRA (India) = 6.317	SIS (USA) = 0.912	ICV (Poland) = 6.630
ISI (Dubai, UAE) = 1.582	ПИИЦ (Russia) = 3.939	PIF (India) = 1.940
GIF (Australia) = 0.564	ESJI (KZ) = 8.771	IBI (India) = 4.260
JIF = 1.500	SJIF (Morocco) = 7.184	OAJI (USA) = 0.350

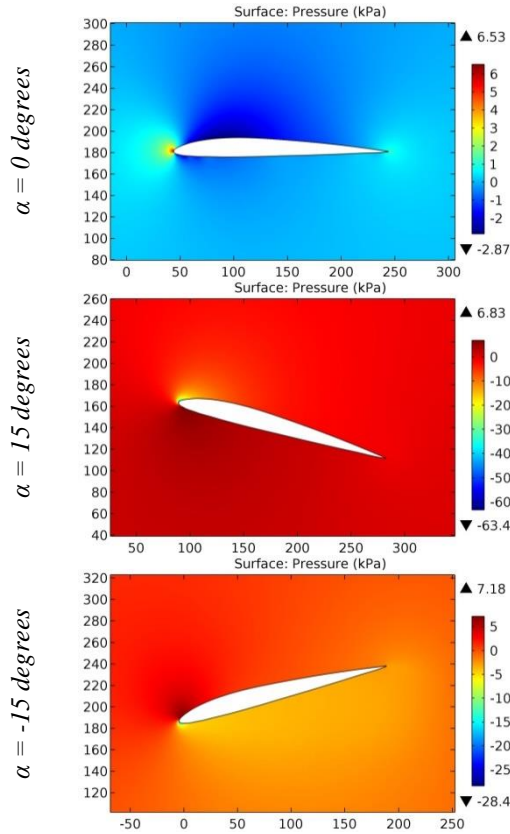


Figure 73. The pressure contours on the surfaces of the Ritz 2-30-9 airfoil.

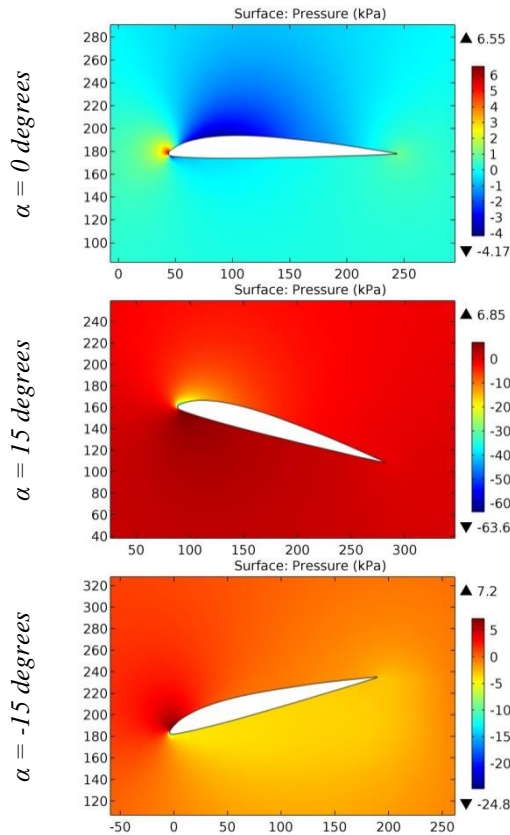


Figure 74. The pressure contours on the surfaces of the Ritz 3-30-10 airfoil.

**Impact Factor:**

ISRA (India) = 6.317	SIS (USA) = 0.912	ICV (Poland) = 6.630
ISI (Dubai, UAE) = 1.582	ПИИЦ (Russia) = 3.939	PIF (India) = 1.940
GIF (Australia) = 0.564	ESJI (KZ) = 8.771	IBI (India) = 4.260
JIF = 1.500	SJIF (Morocco) = 7.184	OAJI (USA) = 0.350

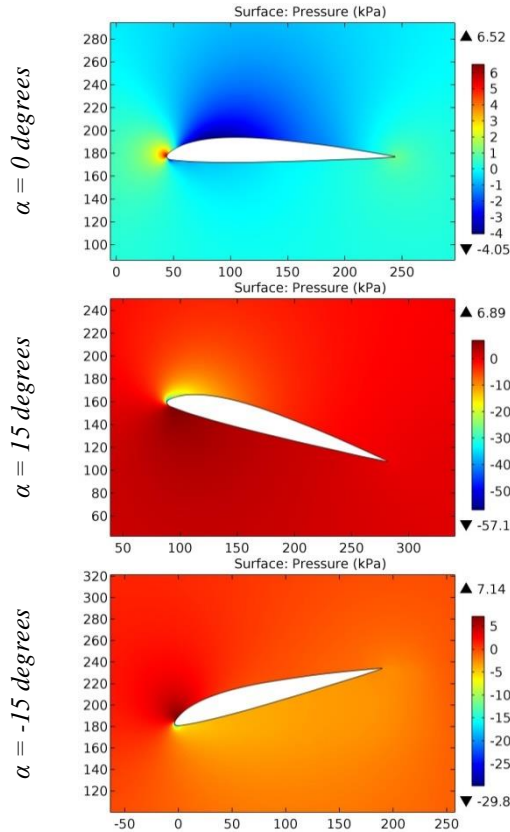


Figure 75. The pressure contours on the surfaces of the Ritz 3-30-11 airfoil.

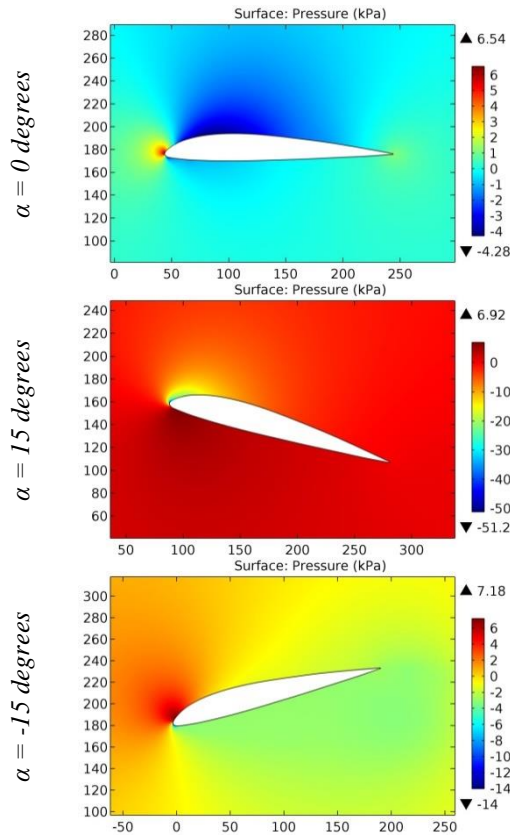


Figure 76. The pressure contours on the surfaces of the Ritz 3-30-12 airfoil.

**Impact Factor:**

ISRA (India) = 6.317	SIS (USA) = 0.912	ICV (Poland) = 6.630
ISI (Dubai, UAE) = 1.582	ПИИЦ (Russia) = 3.939	PIF (India) = 1.940
GIF (Australia) = 0.564	ESJI (KZ) = 8.771	IBI (India) = 4.260
JIF = 1.500	SJIF (Morocco) = 7.184	OAJI (USA) = 0.350

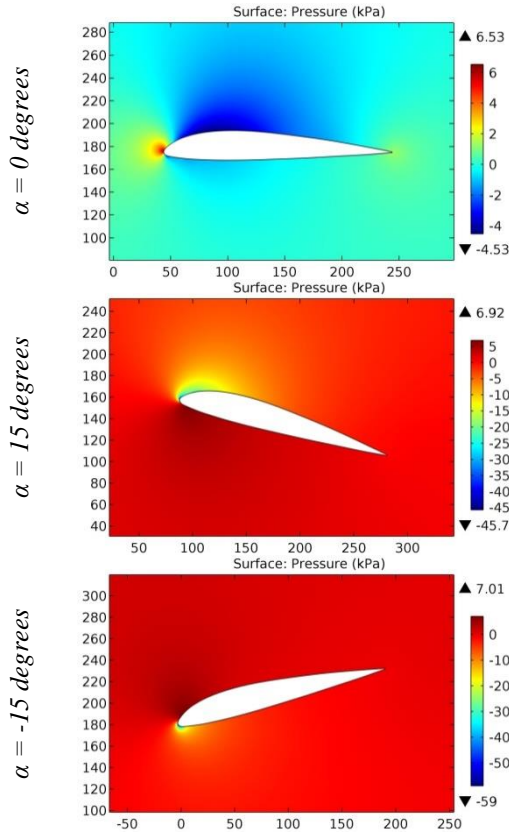


Figure 77. The pressure contours on the surfaces of the Ritz 3-30-13 airfoil.

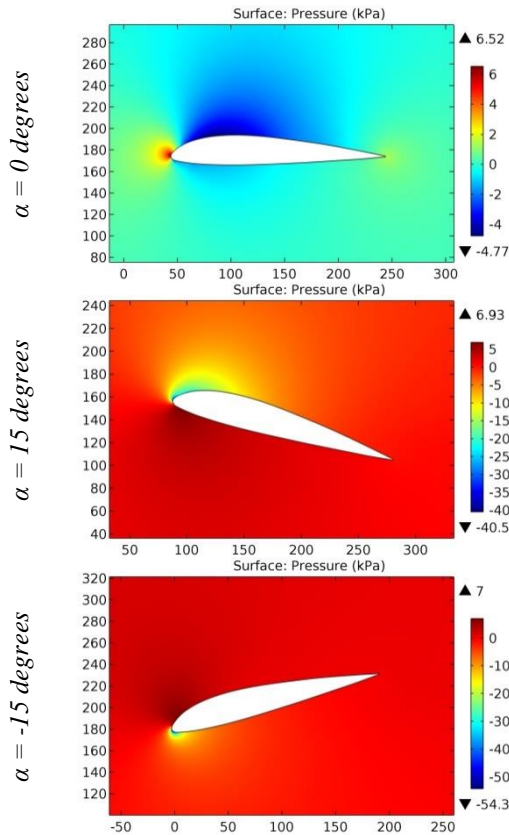


Figure 78. The pressure contours on the surfaces of the Ritz 3-30-14 airfoil.

**Impact Factor:**

ISRA (India)	= 6.317	SIS (USA)	= 0.912	ICV (Poland)	= 6.630
ISI (Dubai, UAE)	= 1.582	ПИИЦ (Russia)	= 3.939	PIF (India)	= 1.940
GIF (Australia)	= 0.564	ESJI (KZ)	= 8.771	IBI (India)	= 4.260
JIF	= 1.500	SJIF (Morocco)	= 7.184	OAJI (USA)	= 0.350

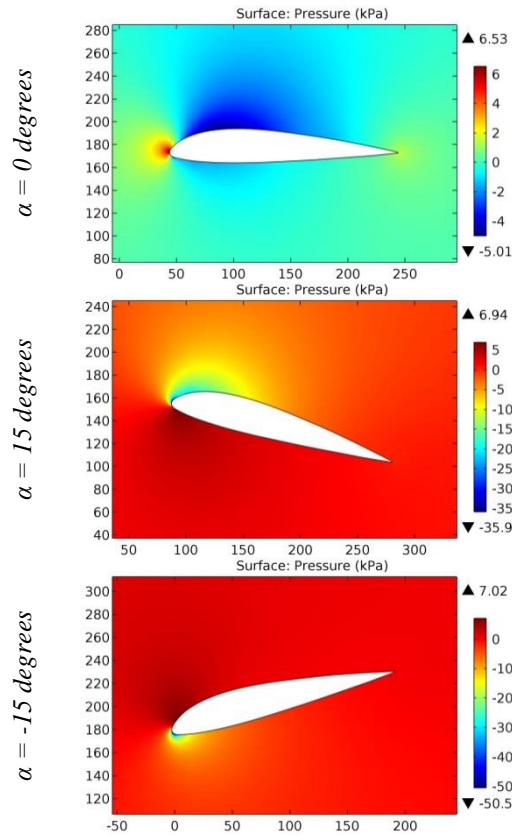


Figure 79. The pressure contours on the surfaces of the Ritz 3-30-15 airfoil.

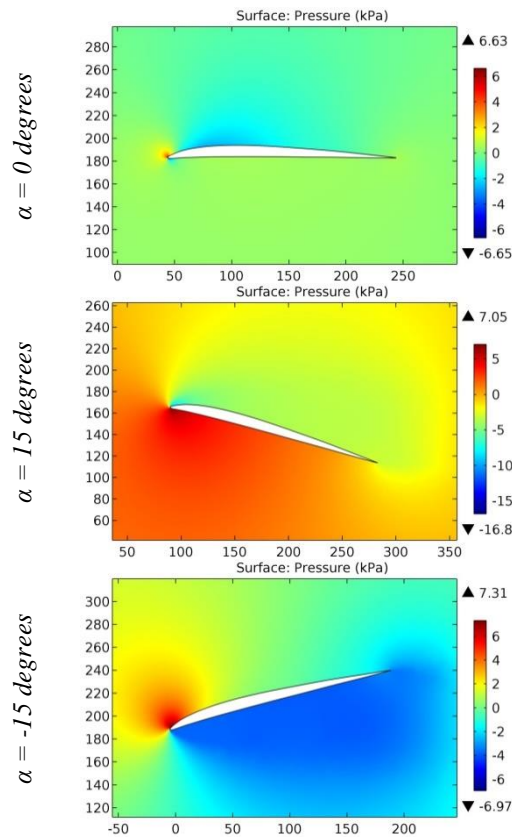


Figure 80. The pressure contours on the surfaces of the Ritz 3-30-5 airfoil.



**Impact Factor:**

ISRA (India) = 6.317	SIS (USA) = 0.912	ICV (Poland) = 6.630
ISI (Dubai, UAE) = 1.582	ПИИЦ (Russia) = 3.939	PIF (India) = 1.940
GIF (Australia) = 0.564	ESJI (KZ) = 8.771	IBI (India) = 4.260
JIF = 1.500	SJIF (Morocco) = 7.184	OAJI (USA) = 0.350

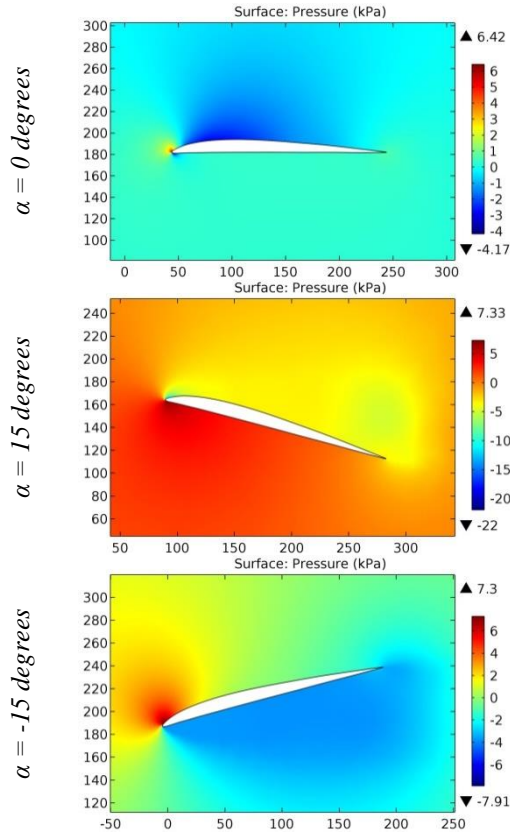


Figure 81. The pressure contours on the surfaces of the Ritz 3-30-6 airfoil.

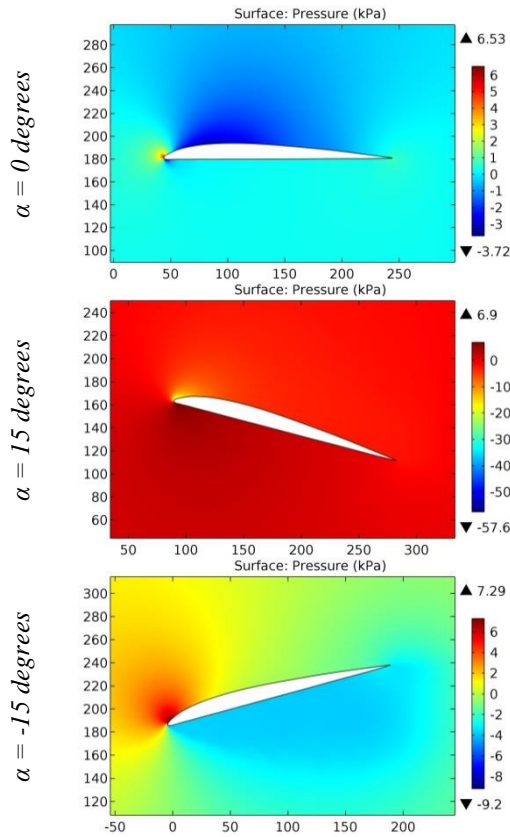


Figure 82. The pressure contours on the surfaces of the Ritz 3-30-7 airfoil.

**Impact Factor:**

ISRA (India) = 6.317	SIS (USA) = 0.912	ICV (Poland) = 6.630
ISI (Dubai, UAE) = 1.582	ПИИЦ (Russia) = 3.939	PIF (India) = 1.940
GIF (Australia) = 0.564	ESJI (KZ) = 8.771	IBI (India) = 4.260
JIF = 1.500	SJIF (Morocco) = 7.184	OAJI (USA) = 0.350

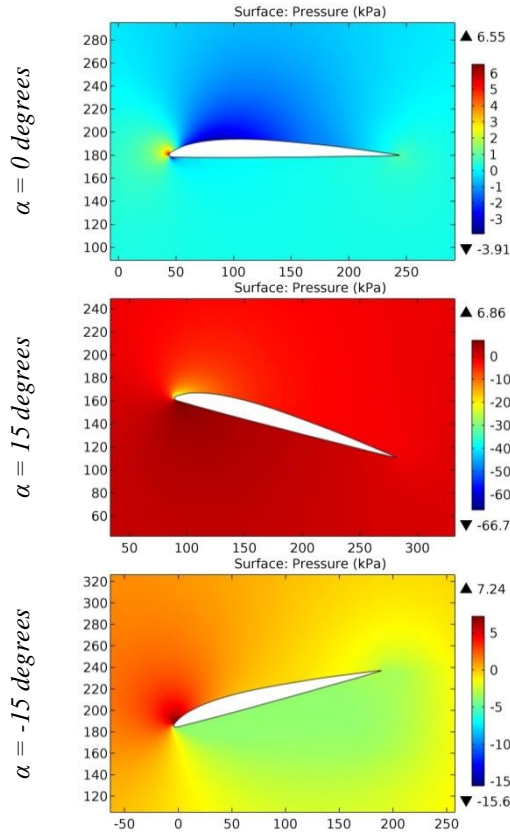


Figure 83. The pressure contours on the surfaces of the Ritz 3-30-8 airfoil.

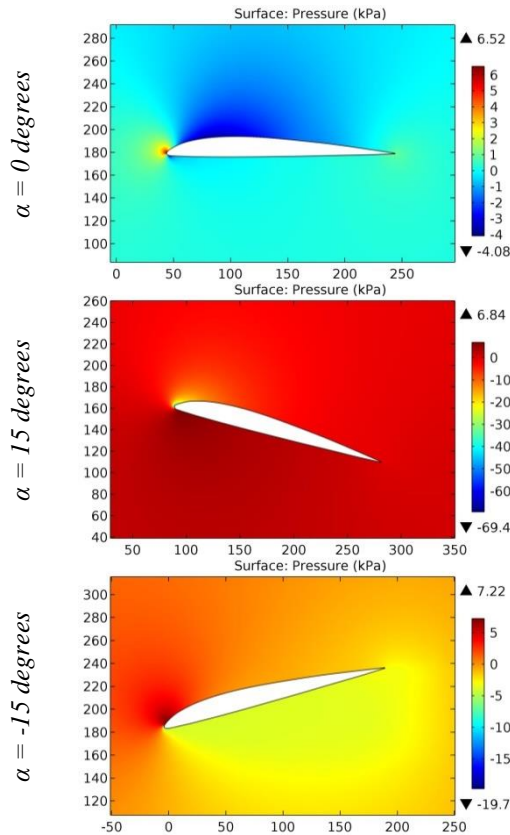


Figure 84. The pressure contours on the surfaces of the Ritz 3-30-9 airfoil.

**Impact Factor:**

ISRA (India) = 6.317	SIS (USA) = 0.912	ICV (Poland) = 6.630
ISI (Dubai, UAE) = 1.582	ПИИЦ (Russia) = 3.939	PIF (India) = 1.940
GIF (Australia) = 0.564	ESJI (KZ) = 8.771	IBI (India) = 4.260
JIF = 1.500	SJIF (Morocco) = 7.184	OAJI (USA) = 0.350

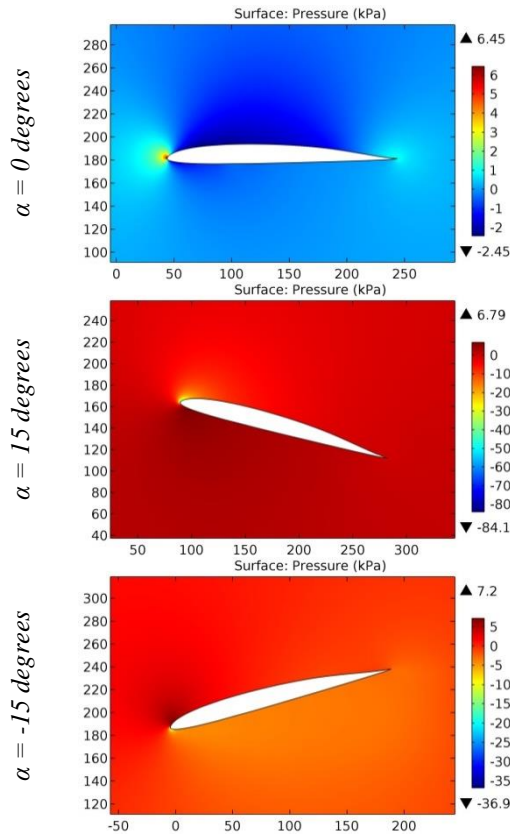


Figure 85. The pressure contours on the surfaces of the RK40 airfoil.

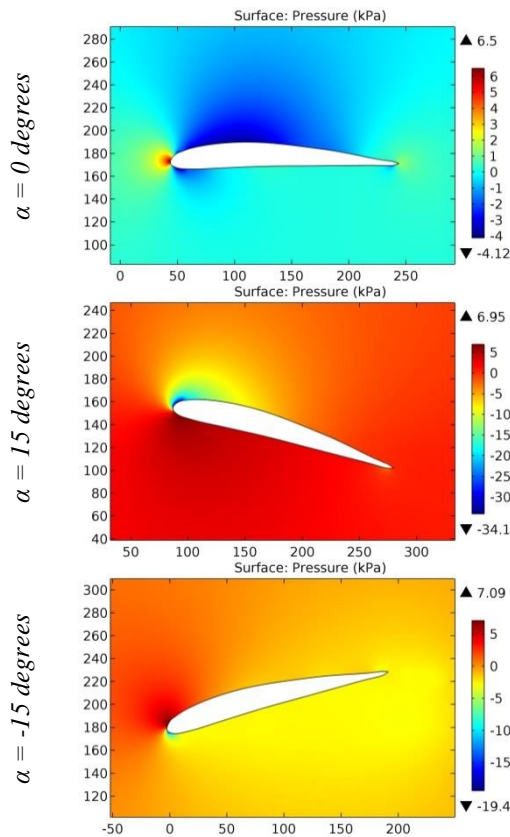
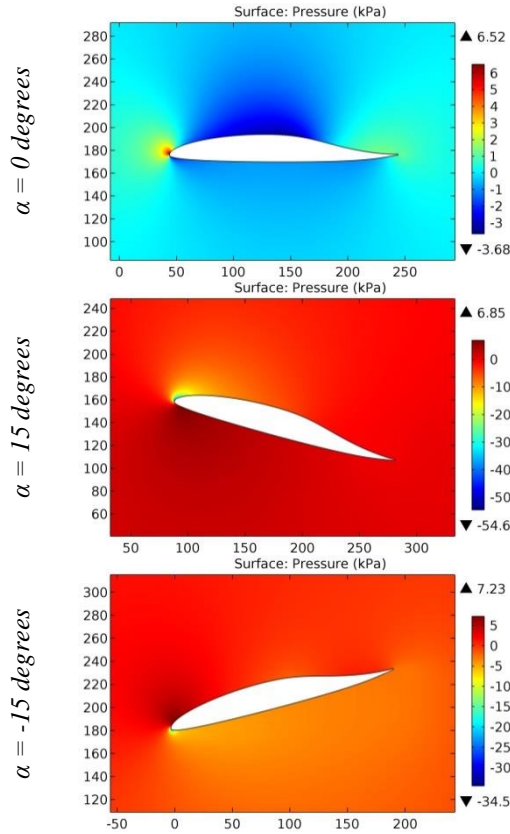


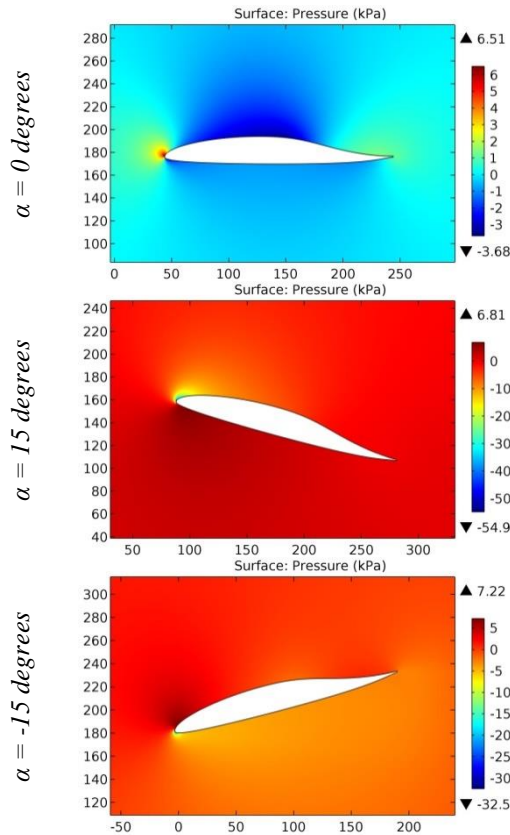
Figure 86. The pressure contours on the surfaces of the Roma 701 airfoil.

**Impact Factor:**

<b>SISRA (India)</b> = <b>6.317</b>	<b>SIS (USA)</b> = <b>0.912</b>	<b>ICV (Poland)</b> = <b>6.630</b>
<b>ISI (Dubai, UAE)</b> = <b>1.582</b>	<b>ПИИЦ (Russia)</b> = <b>3.939</b>	<b>PIF (India)</b> = <b>1.940</b>
<b>GIF (Australia)</b> = <b>0.564</b>	<b>ESJI (KZ)</b> = <b>8.771</b>	<b>IBI (India)</b> = <b>4.260</b>
<b>JIF</b> = <b>1.500</b>	<b>SJIF (Morocco)</b> = <b>7.184</b>	<b>OAJI (USA)</b> = <b>0.350</b>



**Figure 87. The pressure contours on the surfaces of the RONCZ LOW DRAG FLYING WING.**



**Figure 88. The pressure contours on the surfaces of the Roncz/Marske-7 airfoil.**

**Impact Factor:**

ISRA (India) = 6.317	SIS (USA) = 0.912	ICV (Poland) = 6.630
ISI (Dubai, UAE) = 1.582	ПИИЦ (Russia) = 3.939	PIF (India) = 1.940
GIF (Australia) = 0.564	ESJI (KZ) = 8.771	IBI (India) = 4.260
JIF = 1.500	SJIF (Morocco) = 7.184	OAJI (USA) = 0.350

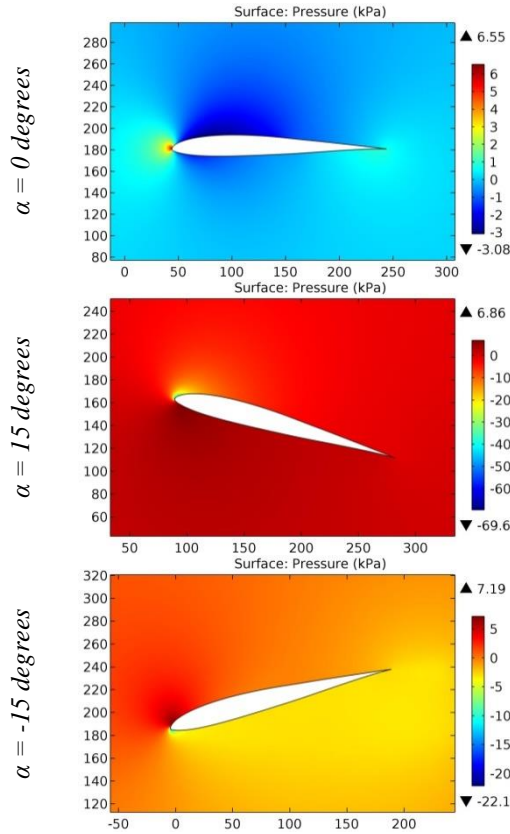


Figure 89. The pressure contours on the surfaces of the rs001 airfoil.

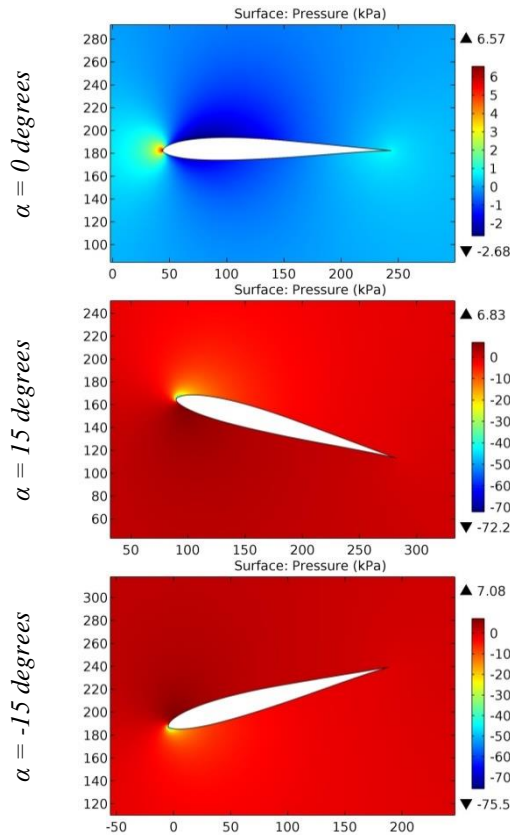


Figure 90. The pressure contours on the surfaces of the rs001m05 airfoil.



**Impact Factor:**

ISRA (India) = 6.317	SIS (USA) = 0.912	ICV (Poland) = 6.630
ISI (Dubai, UAE) = 1.582	ПИИЦ (Russia) = 3.939	PIF (India) = 1.940
GIF (Australia) = 0.564	ESJI (KZ) = 8.771	IBI (India) = 4.260
JIF = 1.500	SJIF (Morocco) = 7.184	OAJI (USA) = 0.350

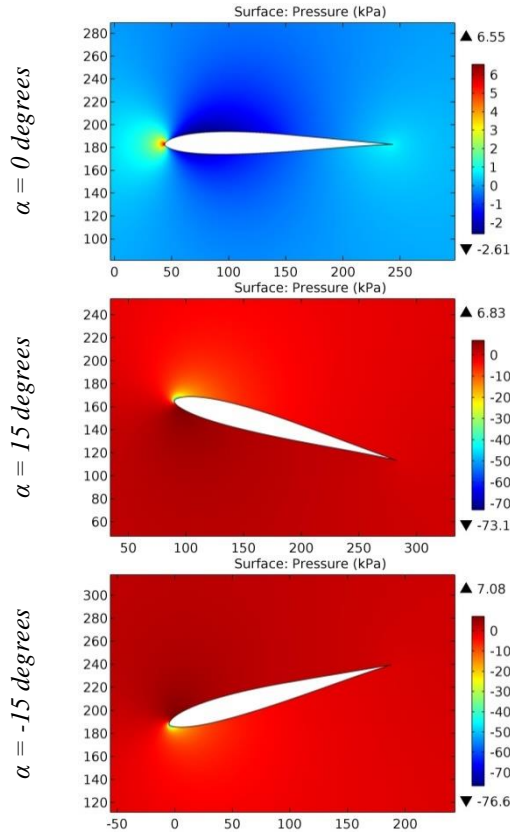


Figure 91. The pressure contours on the surfaces of the Rs001m60 airfoil.

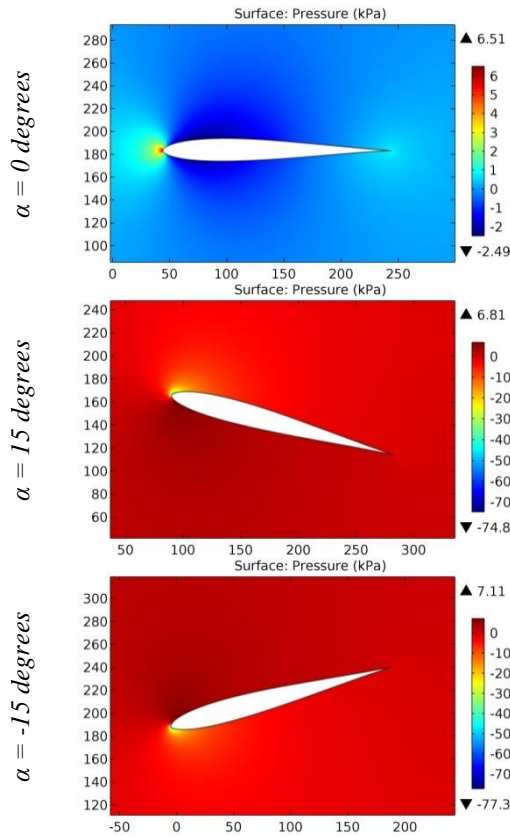


Figure 92. The pressure contours on the surfaces of the Rs001m75 airfoil.

**Impact Factor:**

<b>ISRA (India)</b> = <b>6.317</b>	<b>SIS (USA)</b> = <b>0.912</b>	<b>ICV (Poland)</b> = <b>6.630</b>
<b>ISI (Dubai, UAE)</b> = <b>1.582</b>	<b>ПИИЦ (Russia)</b> = <b>3.939</b>	<b>PIF (India)</b> = <b>1.940</b>
<b>GIF (Australia)</b> = <b>0.564</b>	<b>ESJI (KZ)</b> = <b>8.771</b>	<b>IBI (India)</b> = <b>4.260</b>
<b>JIF</b> = <b>1.500</b>	<b>SJIF (Morocco)</b> = <b>7.184</b>	<b>OAJI (USA)</b> = <b>0.350</b>

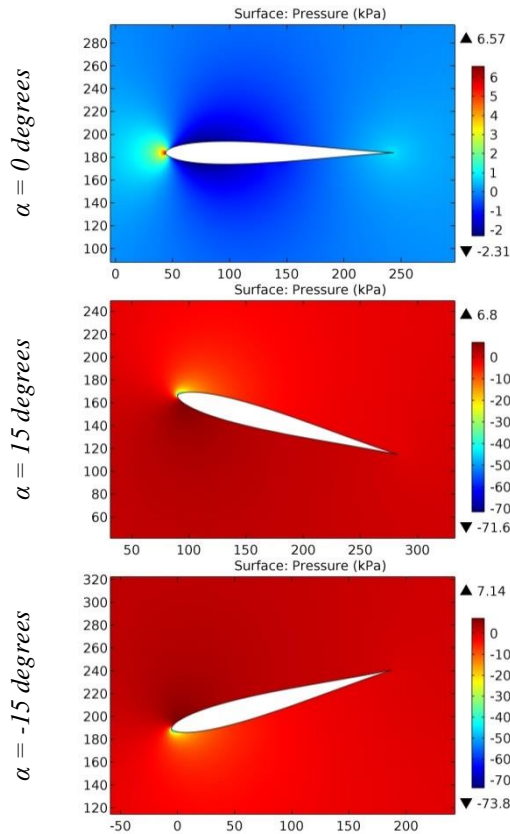


Figure 93. The pressure contours on the surfaces of the rs001t10 airfoil.

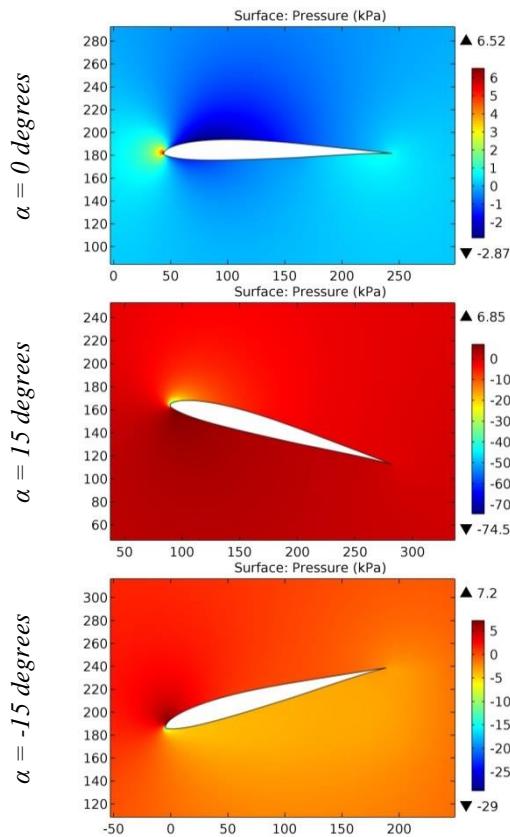
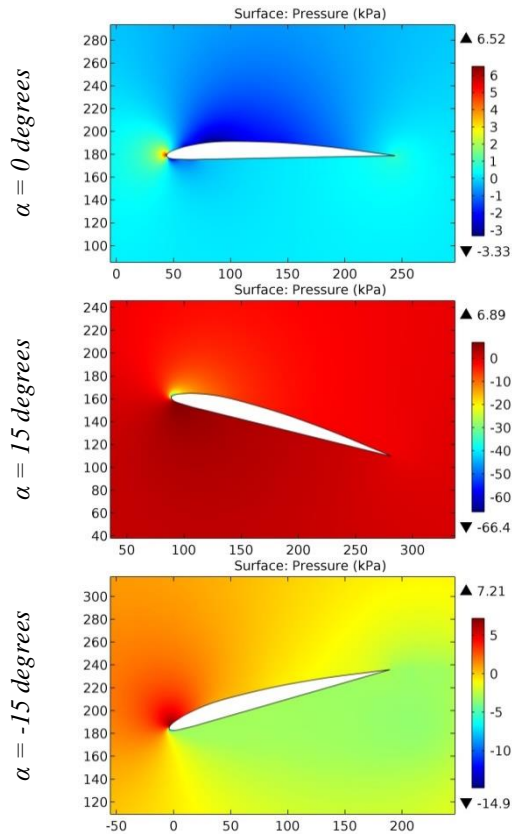


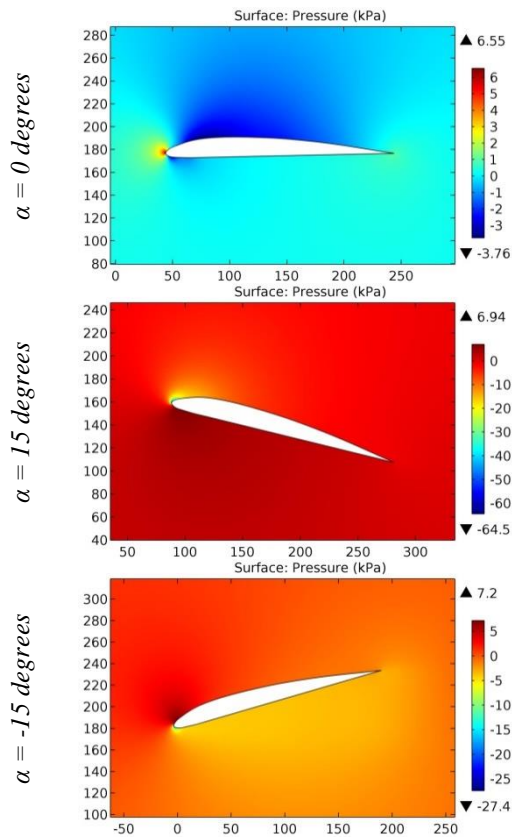
Figure 94. The pressure contours on the surfaces of the rs004a airfoil.

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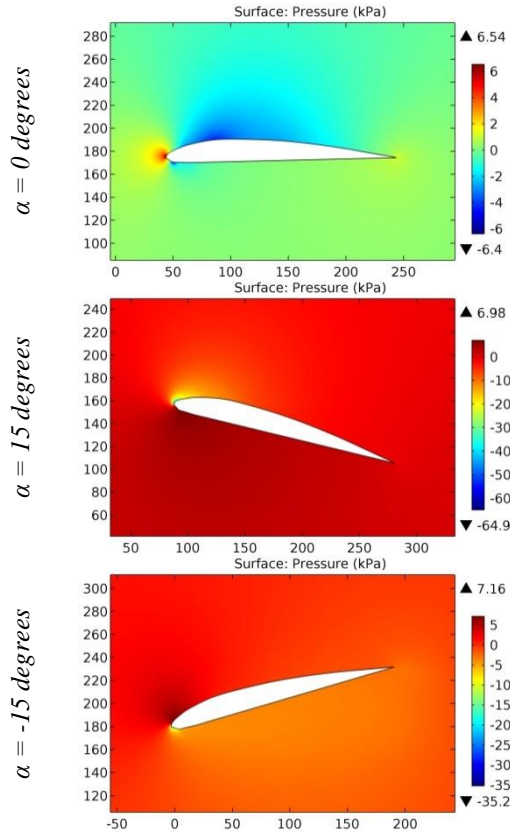
**Figure 95. The pressure contours on the surfaces of the RSG-28 airfoil.**



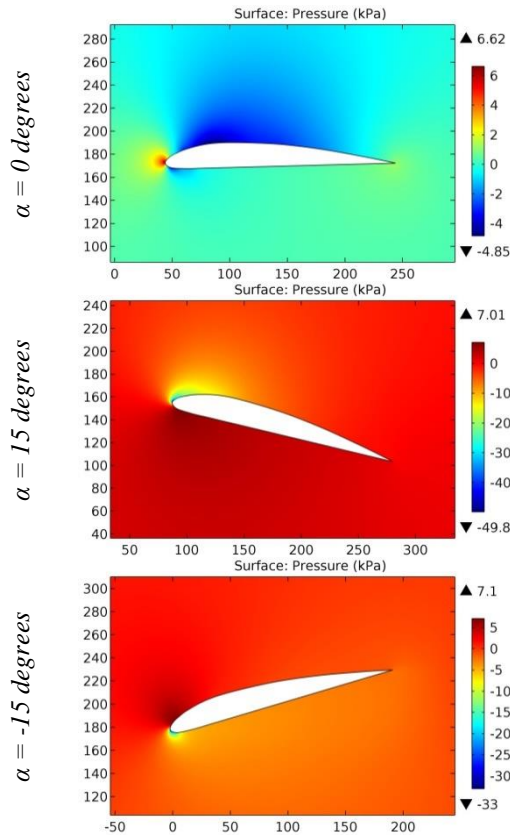
**Figure 96. The pressure contours on the surfaces of the RSG-29 airfoil.**

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<b>JIF</b>	<b>= 1.500</b>	<b>SJIF (Morocco)</b>	<b>= 7.184</b>	<b>OAJI (USA)</b>	<b>= 0.350</b>



**Figure 97. The pressure contours on the surfaces of the RSG-30 airfoil.**



**Figure 98. The pressure contours on the surfaces of the RSG-31 airfoil.**

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JIF = 1.500	SJIF (Morocco) = 7.184	OAJI (USA) = 0.350

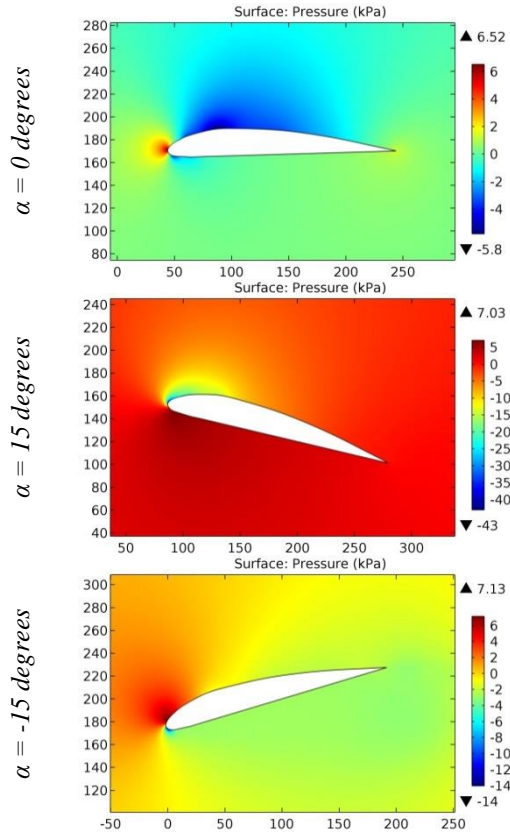


Figure 99. The pressure contours on the surfaces of the RSG-32 airfoil.

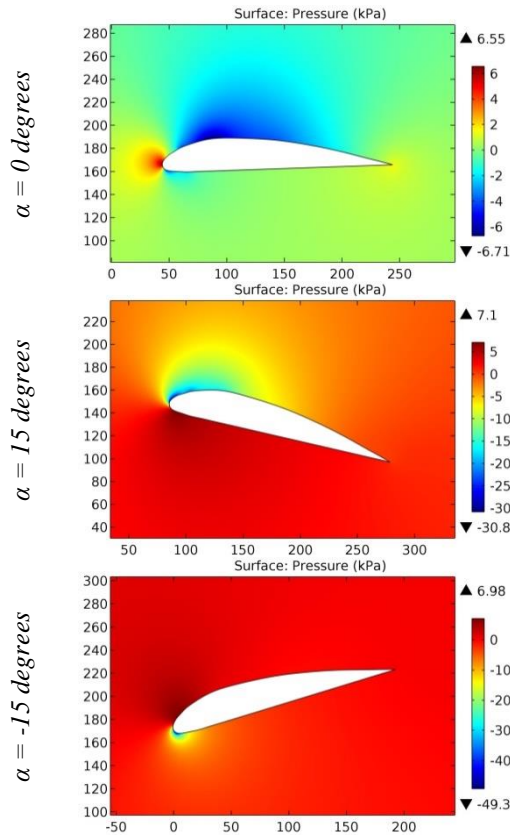
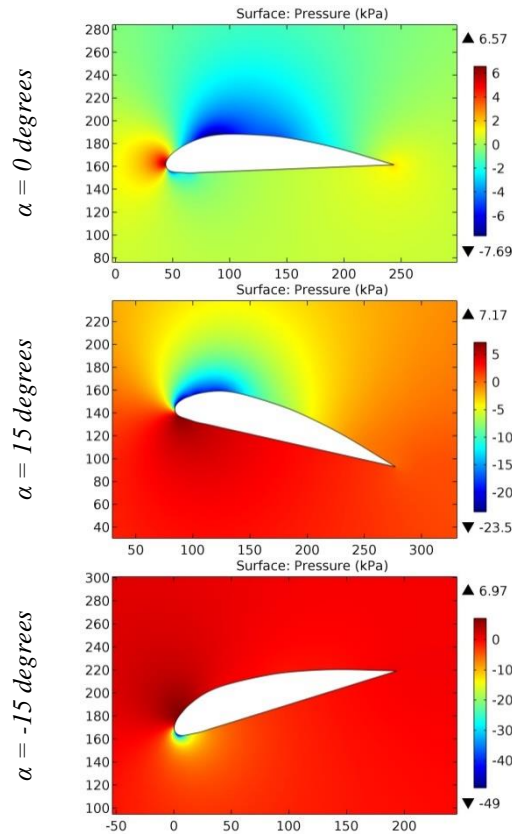


Figure 100. The pressure contours on the surfaces of the RSG-34 airfoil.

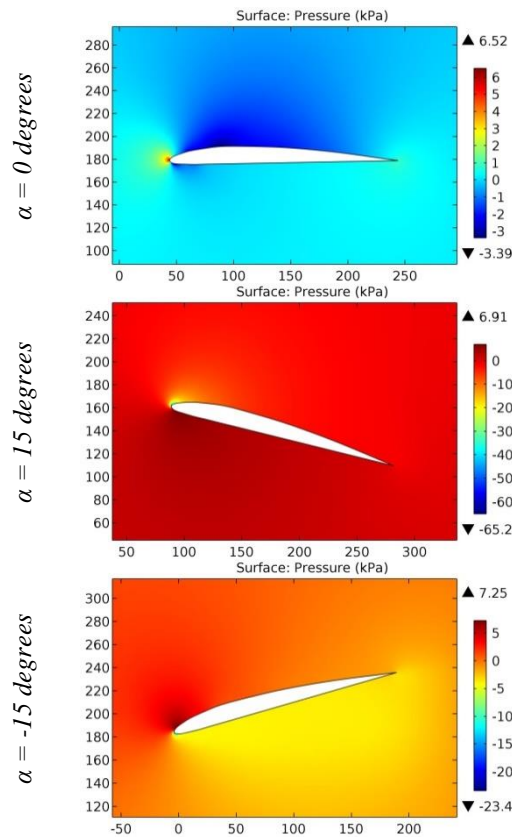


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**Figure 101. The pressure contours on the surfaces of the RSG-36 airfoil.**



**Figure 102. The pressure contours on the surfaces of the RSG-82 airfoil.**

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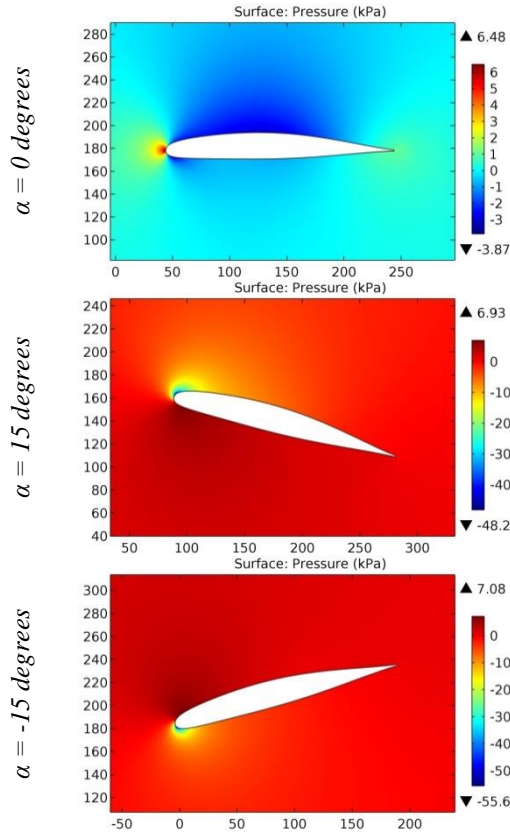


Figure 103. The pressure contours on the surfaces of the Rutan AMSOIL racer canard airfoil.

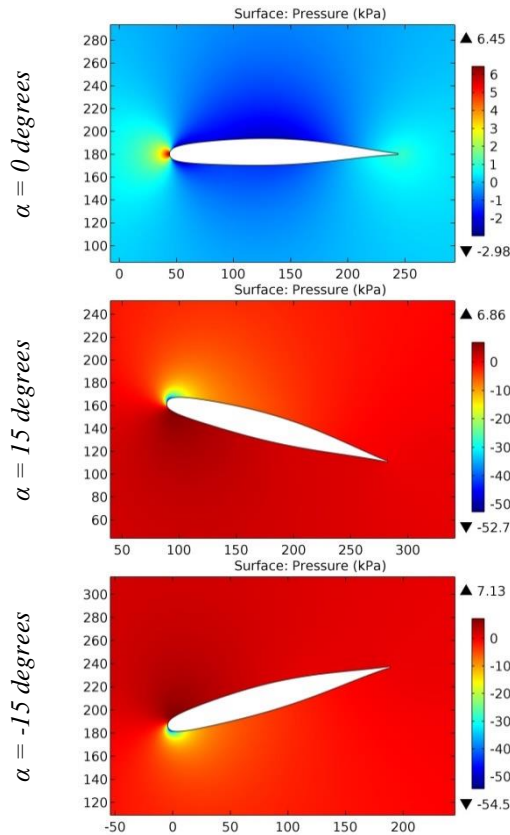


Figure 104. The pressure contours on the surfaces of the Rutan AMSOIL racer wing.

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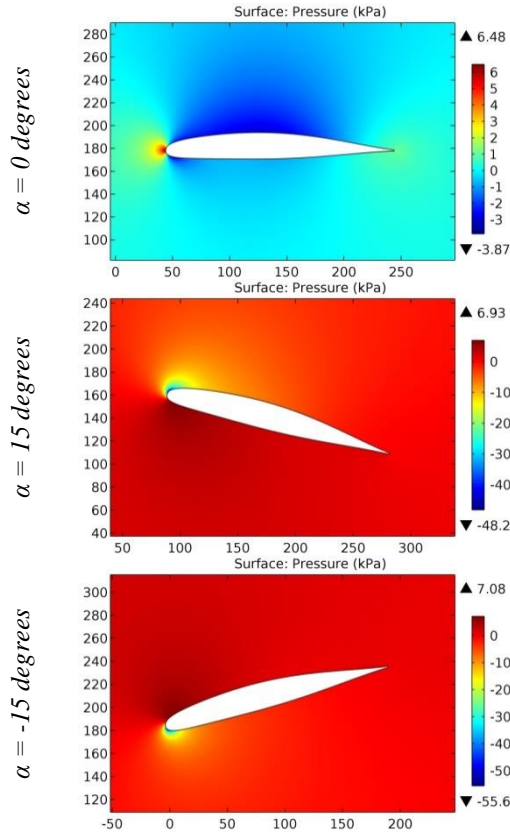


Figure 105. The pressure contours on the surfaces of the RUTAN CANARD airfoil.

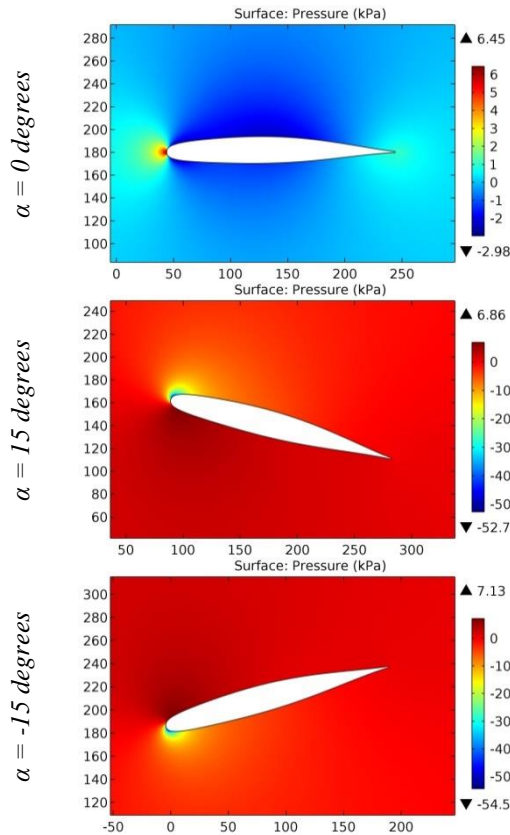


Figure 106. The pressure contours on the surfaces of the RUTAN WING.

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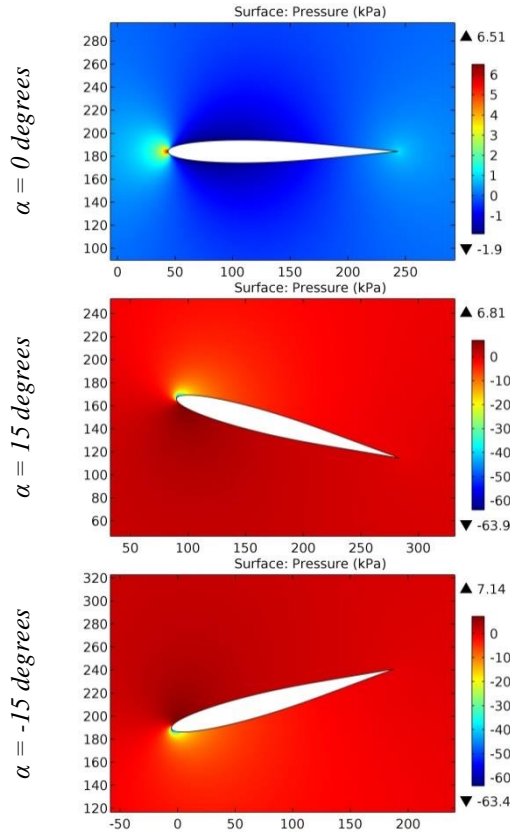


Figure 107. The pressure contours on the surfaces of the Ryan BQM-34 airfoil.

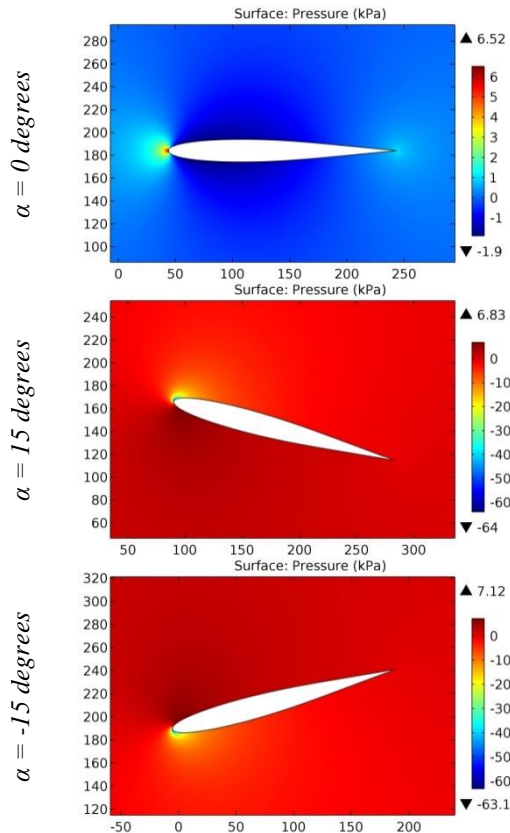


Figure 108. The pressure contours on the surfaces of the RYAN BQM-34 FIREBEE WING.

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Pressures on the upper and lower surfaces of the airfoil during the airplane descent are almost the same in magnitude.

A similar pattern of pressure distribution on the upper and lower surfaces is observed at an angle of attack of -15 degrees of the Ritz 2-30-5 airfoil. The pressure difference is doubled during the airplane climb.

The greatest drag at an angle of attack of 15 degrees was determined for the Roncz/Marske-7 airfoil. Maximum pressure is formed on a small area of the leading edge of the airfoil.

The configuration of the RUTAN WING airfoil leads to the same magnitude of drag on the leading edge during the climb and descent of the airplane. Negative pressure acts on the upper and lower surfaces during the horizontal flight of the airplane.

## Conclusion

Approximate values of the gradients of negative and positive pressures on the surfaces of the airfoils of the airplane wings were obtained on the basis of computer calculations. The analysis of the influence of the configuration of some airfoils on the magnitude of drag during the horizontal flight, climb and descent of the airplane within  $\pm 15$  degrees was carried out. According to the presented largest and smallest values of pressures, it is possible to judge the lifting force of the airplane wing. The Rhode St Genese 26 and Ritz 2-30-5 airfoils are subjected to minimal stresses, which are affected by air flows at an angle of attack of -15 degrees.

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Article



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## APPLICATION OF BIG DATA IN STATISTICAL RESEARCH

**Abstract:** The main disadvantage of traditional methods of statistical data processing that require the introduction of new digital technologies is the low speed of data processing, big data storage systems, the inability to process unstructured data, etc. One of the main directions of the development of the digital economy is the creation of a developed information infrastructure, and its main end-to-end digital technologies are Big Data. The article discusses the application of Big Data in statistics.

**Key words:** Big Data, digital technology, unstructured data, databases, statistical indicator, statistical methodology.

**Language:** English

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### Introduction

The Statistical Commission of the United Nations Economic and Social Council established the Global Working Group on the Use of Big Data for Official Statistics, which structured its programmed of work for 2014-2015 years.

The objectives of the Global Working Group are to provide guidance for a global program on the use of Big Data for official statistics, including their use in quantifying implementation indicators and in the area of sustainable development for the period up to 2030, for their various policy applications and to promote capacity-building activities in the field of Big Data. Big Data is a modern digital data processing technology that provides high processing speed and enables decentralized storage of big data, work with unstructured data, etc. Big Data characterized by a set of approaches, tools and methods for processing structured and unstructured large amounts of data, and a significant variety of data to obtain effective results and distribute them across numerous nodes of a computer network [1,2].

This is an alternative to traditional database management systems and solutions of the Business Intelligence (BI) class. There are characteristics that allow you to attribute information and data specifically to Big Data. That is, not all data may be

suitable for analytics. In these characteristics, the key concept of big date just laid down.

Features of the general classification of statistical indicators

In relation to statistical science: the actual statistical indicators; indicators of other sciences.

According to the method of determining the quantitative content: absolute; relative.

According to the territorial coverage of the object: global; continental; groups of countries; individual countries; regional; administrative units; cities; enterprises, organizations, etc.

By objects and types of economic activity: firm; association; subtype of economic activity; type of economic activity.

According to the time covered: instant; interval.

According to the degree of variability in time: static; dynamic.

According to the degree of complexity of the formation of a sign: one-dimensional; multidimensional.

In relation to the characterized object: directly characterizing the object - "direct"; indirectly, through another object - "indirect".

In relation to the characteristics of the described process: extensive (volumetric); intensive (qualitative).

According to the degree of complexity of the calculation method: obtained because of applying a

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separate statistical method; obtained because of applying a set of statistical methods.

In relation to reality: characterizing reality (real); characterizing the possibility (potential, normative, predictive, and planned).

- In relation to the task of the study: initial (input); productive (weekend).

They all fit in three V.

1. Volume. The data measured in the size of the physical volume of the "document" to analyze;

2. Velocity. The data is not in its development, but is constantly growing, which is why their rapid processing is required to obtain results;

3. Variety. The data may not be single-format. That is, they can be scattered, structured or partially structured.

However, from time to time, a fourth V (veracity - reliability / plausibility of data) and a fifth V are added to the VVV (in some variants it is viability - viability, in others it is value - value).

In the scientific literature, Big Data understood as a set of data with possible exponential growth that is too large, too unformatted or too unstructured for analysis by traditional methods [3].

Big Data is one of the approaches, tools and methods of processing structured and unstructured huge amounts of information.

In addition, Big Data tools and methods are fundamentally different from working with conventional databases, if the amount of information in conventional databases takes from several gigabytes (10<sup>9</sup> bytes) to terabytes (10<sup>12</sup> bytes), then the volume of the BigData database reaches from several petabytes (10<sup>15</sup> bytes) to several Exabyte's (10<sup>18</sup> bytes) and comparative. The BigData criterion is the way information is stored and processed.

BigData characterized by a decentralized way of storing information, which is due to the advent of personal computers. This approach makes it possible to divide the information base into several separated ones and allows each client to use its own database, which can be either part of the general information base or a copy of the information base as a whole [4].

BigData characterized by a decentralized way of storing information, which is due to the advent of personal computers. This approach makes it possible to split the information base into several separated ones and allows each client to use their own database, which can be either part of a common information base or a copy of the information base as a whole. The semi-structured or unstructured nature of the Big Data database is another difference from traditional data, for which structuring is inherent. Structuring refers to the presence of established relationships and relationships between elements within the system, the distribution of system elements by hierarchy levels. Big Data partially or completely does not have the above features. Another criterion for comparing Big Data and traditional data can be data generation. If

traditional data sources always assume the presence of a person, then Big Data often generated automatically, without human involvement [5].

Big Data has a number of fundamental differences from traditional data, due to which they have both a number of advantages and contain certain difficulties. The main advantage of big data in statistical research is the timely receipt of voluminous arrays of information with least financial and time costs. Currently, the collection and storage of big data on servers is difficult due to technical capabilities, so cloud technologies are becoming increasingly popular in statistical organizations. To date, only a few countries have developed a long-term strategy for using big data. In order to minimize risks in the development of new technologies, leading countries cooperate within the framework of global research centers, such as the UN Statistical Commission and the Global Working Group on Big Data in Official Statistics.

Mobile communications and the global coordinate system (GPS), geospatial information and social networks considered as the main sources forming big data for their subsequent application in statistics. Some of this data is not publicly available, but is the property of the private sector, so there is a need to establish interaction between statistical research bodies and companies. Based on the definition of Big Data, it is possible to formulate the basic principles of working with such data:

1. Horizontal scalability. Since there can be as much data as you like, any system that involves processing big data must be extensible. The amount of data has increased by 2 times - the amount of iron in the cluster has increased by 2 times and everything has continued to work [6].

2. Fault tolerance. The principle of horizontal scalability implies that there can be many machines in a cluster. For example, Yahoo's Hadoop cluster has more than 42,000 machines.

This means that some of these machines will guaranteed to fail. Methods of working with big data should take into account the possibility of such failures and survive them without any significant consequences.

3. Data locality. In large distributed systems, data distributed across a large number of machines. If the data is physically located on one server and processed on another, the data transfer costs may exceed the costs of processing itself. Therefore, one of the most important principles of designing BigData solutions is the principle of data locality - if possible, we process data on the same machine on which we store them. All modern tools for working with big data somehow follow these three principles. In order to follow them, it is necessary to come up with some methods, methods and paradigms for developing data development tools [7].

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Working with Big Data requires good theoretical training and experience, the ability to search and filter information (Data mining). Data mining methods lie at the intersection of databases, statistics and artificial intelligence. The basis of Data mining methods are all kinds of statistical methods: classifications, typologies, descriptive analysis, correlation and regression analysis, factor analysis, variance analysis, component analysis, discriminant analysis, time series analysis, survival analysis, relationship analysis, modeling and forecasting, pattern recognition methods, the use of decision trees, artificial neural networks, genetic algorithms, evolutionary programming, associative memory, fuzzy logic.

One of the most important purposes of Data mining is also to visually present results of calculations (visualization). Currently, Micro Soft, Oracle, IBM, SAP companies are developing tools for working with Big Data [8-11].

The fundamental principles of statistics inevitably follow the fundamental principles of statistics: uniformity of data, their comparability in time and space, relevance of statistical indicators of the essence of the measured processes, aggregation and disaggregation of data, confidentiality of personal data. A statistical indicator is one of the basic concepts in the statistical methodology of cognition, which understood as a statistical characteristic, in the unity of quantity and quality (content), of various phenomena and processes under study in a particular place and time. A statistical indicator is a generalized characteristic of a set of phenomena and the necessity of combining quantitative expressions and qualitative determinations in the processes and phenomena under study, including in the "digital economy".

This indicator includes the object of the study; the time of the measurement; the place of its determination; the unit of definition (measurement); the calculation method (especially important in

international comparisons), the numerical value. The statistical characteristic should include the state, dynamics or variation, ratio, relationship, structure of the statistical aggregate or individual phenomenon.

The active involvement of statistics in the digital economy and the formation of a digital economy ecosystem around it to serve strategic goals is associated with a change in its development paradigm: it is necessary to move from primarily collecting information to its search and analysis, the creation of a statistical information technology platform Stat-net.

The leading principles of statistical information are access to statistical information, the development of "smart statistics" [9-15].

A statistical indicator, most often, generalized characteristic of set of phenomena;

- the necessity of combining quantitative expressions and qualitative determinations in the processes and phenomena under study, including in the "digital economy";

- Statistical indicator should include – the object of research;

- Time of measurement; the place of its determination;

- Unit of definition (measurement);

- Calculation methodology (especially important in international comparisons), a numerical value;

- Statistical characteristic should include – the state, dynamics or variation, ratio, relationship, structure of a statistical aggregate or an individual phenomenon.

Digitalization of the economy should contribute to solving the problem of building a system of indicators of sustainable development. The success of the development of state statistics largely depends on the cooperation of statisticians with the expert community and on the activity of the professional International Statistical Institute (ISI).

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## DESIGNING ARTIFICIAL INTELLIGENCE IN STATISTICAL SYSTEMS

**Abstract:** For the effective formation of an artificial intelligence project in statistical systems, the article provides an introduction, approaches and directions of artificial intelligence. Separate subsystems are considered as new dynamic possibilities of transformation of statistical systems.

**Key words:** design, research, statistical processes, directions, approaches, subsystems, digital economy, interbranch balance in new approaches.

**Language:** English

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### Introduction

For each country, statistical activity is an important area that is necessary in the dynamic development of society. The use of modern tools in solving numerous issues of statistical systems presents huge opportunities in innovative research. Artificial intelligence in this field is of interest both in theoretical and practical works. Let us consider some aspects of the issues that are relevant both in past, present, and future studies, The use of artificial intelligence in public administration, economy, industry, social protection, education, medicine, employment, rural tourism and other spheres is one of the topical issues, which is based on the Decree of the President of the Republic of Uzbekistan "On measures to create conditions for the operational implementation of artificial intelligence technologies" dated February 17, 2021 PP-4996. The Law of the Republic of Uzbekistan "On Official Statistics" was adopted on August 11, 2021. [1].

The systematic conduct of national research in the Republic of Uzbekistan includes a strategy for the development of artificial intelligence in various economic systems. Designing artificial intelligence in a statistical system has its own peculiarities in the process itself, as well as in achieving specific goals. The mass process of continuous data collection, the methodology of data calculation, work with respondents, the composition of the collected data,

depending on the requests and needs of the state and society, is in constant dynamic development and change. This statistical process of organization and management is important in order to obtain reliable summary statistics. In addition, it is important for the rational management and use of state budget funds, for the effectiveness of all processes as a whole [2-4].

It would be appropriate to note that the various subdomains of artificial intelligence research are centered on specific goals and the use of specific tools. Traditional research goals in the field of artificial intelligence include thinking, knowledge demonstration, planning, training; general intelligence (the ability to solve an arbitrary problem) is one of the long-term goals of this field, etc. To solve these problems, artificial intelligence researchers have adapted and combined a wide range of problem solving methods, including search engine and mathematical optimization, formal logic, artificial neural networks and methods based on statistics, probability and economics [5].

### Approaches and directions of artificial intelligence (AI).

Approaches to understanding the problem there is no single answer to the question of what artificial intelligence does. Almost every author who writes a book about artificial intelligence begins with some definition in it, taking into account the achievements

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of this science from his point of view. Philosophy has not solved the question of the nature and state of the human mind. There is also no clear criterion for achieving "intelligence" for computers, although a number of hypotheses were proposed at the beginning of the development of artificial intelligence, such as the Turing test or the Newell—Simon hypothesis. Therefore, despite the fact that there are many approaches to understanding the tasks of artificial intelligence and the creation of intelligent information systems, two main approaches to the development of artificial intelligence can be distinguished[3]: Top-down AI, semiotic-creating expert systems, knowledge bases and logical inference systems that simulate high-level mental processes:

The Turing test is an empirical test proposed by Alan Turing in the article "Computational Methods and Intelligence" published in the philosophical journal in 1950. The purpose of this test is to determine the possibility of artificial thinking close to a person. The standard interpretation of this test is: "one person communicates with one computer and one person. Based on the answers to the questions, he must determine whom he is talking to: a person or a computer program. The task of a computer program is to motivate a person to make the wrong choice." "Not all test participants see each other. [6].

The most general approach assumes that artificial intelligence is able to demonstrate behavior that is no different from human behavior, and in normal situations. The idea is a generalization of the Turing test approach, in which a machine becomes smarter when it is able to maintain a conversation with an ordinary person, and he cannot understand what he is talking about with the machine (the conversation is conducted by correspondence). Science fiction writers often suggest a different approach: artificial intelligence arises when a machine is able to feel and create. Therefore, the owner of Andrew Martin in the movie "The Man of Two hundred years" begins to treat him as a person when he creates a toy according to his project. Star Trek data, being able to communicate and learn, dream of gaining emotions and intuition. However, the latter approach does not stand up to criticism when examined in more detail. For example, it is not difficult to create a mechanism that evaluates external or internal parameters.

Historically, the symbolic approach was the first in the era of digital machines, because after the creation of Lisp, the first symbolic computing language, its author believed in the possibility of starting the practical implementation of these intelligent tools.

The symbolic approach allows you to work with poorly formalized representations and their meanings. The success and effectiveness of solving new problems depends only on the ability to separate important information, which requires flexibility in abstraction methods. Taking into account that a simple

program defines a certain way of interpreting data, so its work seems unbiased and purely mechanical. Only a person, an analyst or a programmer who cannot entrust it to a machine in this case solves the intellectual task. As a result, a single abstraction model, a system of constructive entities and algorithms is created. Flexibility and versatility become huge resource costs for unusual tasks, which means that the system returns to sanity.

Logic programming partially solves this cultural problem. The logical approach to the creation of artificial intelligence systems is based on the modeling of thinking. The theoretical basis is logic. The logical approach can be demonstrated using the Prologue logic programming language and a system for these purposes. Programs written in the prologue language reflect the facts and rules for making a logical conclusion in the form of a sequence of actions that lead to the desired result without a strict definition of the algorithm.

The latter approach, developed since the early 1990s, is called an agent-oriented approach or an approach based on the use of intelligent (rational) agents. According to this approach, intelligence is the ability of the computing part (roughly speaking, planning) to achieve the goals set for a smart machine. Such a machine itself will be an intelligent agent that will perceive the surrounding world with the help of sensors and with the help of actuators will be able to influence objects in the environment. This approach focuses on methods and algorithms that help an intelligent agent survive in the environment by doing its job.

Therefore, here the algorithms of pathfinding and decision-making have been studied much more deeply. The hybrid approach assumes that only a synergistic combination of neural and symbolic models provides a full range of cognitive and computational capabilities. For example, expert opinion rules can be created using neural networks, and production rules can be obtained using statistical training. Proponents of this approach believe that hybrid information systems will be much stronger than the sum of individual concepts. Symbolic modeling of thought processes. There is such a broad direction as modeling thinking [7].

For many years, the development of this science has been moving along this path, and now it is considered one of the most advanced areas of modern artificial intelligence. Modeling thinking involves the creation of symbolic systems, the implementation of which sets a specific task, and the output requires its solution. An important area is natural language processing, which analyzes the possibilities of understanding, processing and creating texts in the "human" language. Within this direction, the goal is to process the natural language in such a way that the person present can gain knowledge independently by reading the text. Some direct natural language

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processing programs include information retrieval (including in-depth text analysis) and machine translation [8].

### Presentation and use of knowledge.

The direction of knowledge engineering combines the tasks of obtaining knowledge from simple data, their systematization and use. This area has historically been associated with the creation of expert systems — programs that use special knowledge bases to gain knowledge.

Obtaining knowledge from data is one of the main problems of data mining. There are various approaches to solving this problem, including the use of neural networks based on technology, neural network verbalization procedures.

Machine learning. Machine learning problems relate to the process of independent acquisition of knowledge by an intelligent system in the process of its functioning. This direction has been central from the very beginning of the development of artificial intelligence [2]. At a summer conference in Dortmund in 1956, Ray Solomonov wrote a paper on probabilistic machine learning without a teacher and called it "an inductive inference machine".

Learning without a teacher - allows you to recognize images in the input stream. Teaching with a teacher also includes classification and regression analysis. Classification is used to determine which category an image belongs to. Regression analysis is used to find a continuous function in a number of numerical input/output examples, based on which it will be possible to evaluate the result.

During training, the agent is rewarded for good answers and punished for bad ones. They can be analyzed from the point of view of decision theory, using concepts such as utility. Mathematical analysis of machine learning algorithms is a branch of theoretical computer science known as computational learning theory.

Neural networks are used to solve fuzzy and complex tasks, such as recognizing geometric shapes or clustering objects. The genetic approach is based on the idea that a particular algorithm can be more efficient if it gets better characteristics from other algorithms ("parents"). A relatively new approach, whose task is to create an autonomous agent program that interacts with the external environment, is called the agent approach.

Big data is the designation of structured and unstructured data of large size and significant diversity.

The appearance of large amounts of information in digital format, technologies for their storage and calculation, mathematical analysis tools lead to changes in business processes. Apparently, simultaneously with the rapid accumulation of information, technologies for their analysis are rapidly developing, as well as new directions in the research

plane, such as data science, are emerging. Data science is a very broad field that includes dozens of activities capable of solving a large number of tasks. It is this fact that makes data science important for the modern world. Prospects for further research are associated not only with the risks and difficulties of using big data, but also with the search for concepts that can create additional value for companies or useful services for citizens. [9]

After some familiarization with the approaches and directions of AI, we will consider individual subsystems in the project system that can significantly influence the effective formation of the entire artificial intelligence project in statistical systems as a whole.

The relevance of the issues of digital economy research can be represented by the words in the message of the President of the Republic of Uzbekistan to the Oliy Majlis, held on January 24, 2020, that "accelerated transition to the digital economy will be our priority task for the next five years" "...in order to consistently continue and bring to a new modern level the work we have begun on the development of science and education, the education of our youth by individuals with deep knowledge, high culture and spirituality, the formation of a competitive economy, I propose to declare 2020 the Year of Development of Science, Education and the Digital Economy in our country." [2].

The digital economy is a system of implementation of economic, social and cultural relations based on the use of digital technologies. Sometimes it is also expressed in terms such as internet economy, new economy or web economy.

In 1995, the American programmer Nicholas Negroponte introduced the term "digital economy" into practice. Now politicians, economists, journalists, entrepreneurs from all over the world are engaged in this activity – almost everyone [10-15].

The digital economy is not some other economy that needs to be created from scratch. This means that by creating new technologies, platforms and business models and implementing them into everyday life, we are transferring the existing economy into a new system [3].

Out of the many existing models in this case, let us consider the intersectoral balance of production and distribution of products—a tool for analyzing and planning the structure of social production, taking into account the complex interrelations of the branches of the production sphere.

The process of formation and use of the aggregate social product in a detailed sectoral context. Detailing the general economic proportions reflected by the most important component of the balance of the national economy — the balance of the social product, the intersectoral balance at the same time synthesizes into a single system the private material balances that characterize the sources of resource formation and the

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use of certain types of products in the national economy.

V. Leontiev (later a professor at Harvard University, USA) developed the mathematical model of intersectoral balance. The scheme of the intersectoral balance is a synthesis of two tables, one of which characterizes the detailed structure of production costs in the context of individual types of products, and the other - the structure of the distribution of products in the national economy.

The intersectoral balance in kind consists of two sections. The first section reflects the sources of product resource formation. The second section characterizes the directions of the use of product resources for current production consumption (in the context of the same types of products for which the

balance sheet takes into account the formation of resources, which ensures the staggered construction of this section of the balance sheet) and for final consumption [4].

In this study, we decided to consider the digital economy in the system of intersectoral balance, to determine which part of each industry is the digital economy. As data from developed countries show, the impact of the digital economy on all other industries increases over time. In the end, this significantly affects the overall GDP figure.

Consider the model of the intersectoral balance of production and distribution of products where the digital economy is represented as one of the branches of material production (Fig.1).

**Fig.1**

Consuming industries Manufacturing industries	1.Industry	2.Agricultural industry	3.Other branches of material production	4.Digital Economy	Final product	Gross output
	1.Industry	X <sub>11</sub>	X <sub>12</sub>	X <sub>13</sub>		
2. Agriculture	X <sub>21</sub>	X <sub>22</sub>	X <sub>23</sub>	X <sub>24</sub>	Y <sub>2</sub>	X <sub>2</sub>
3.Other branches of material production	X <sub>31</sub>	X <sub>32</sub>	X <sub>33</sub>	X <sub>34</sub>	Y <sub>3</sub>	X <sub>3</sub>
4. Digital Economy	X <sub>41</sub>	X <sub>42</sub>	X <sub>43</sub>	X <sub>44</sub>	Y <sub>4</sub>	X <sub>4</sub>
Clean products	Y <sub>1</sub>	Y <sub>2</sub>	Y <sub>3</sub>	Y <sub>4</sub>		
Gross output	X <sub>1</sub>	X <sub>2</sub>	X <sub>3</sub>	X <sub>4</sub>		

It can be noted here that this model is a statistical model, It is being developed for a particular period.

Let us consider the model on a concrete example:

**Fig.2**

Consuming industries Manufacturing industries	1. Industry	2. Agricultural industry	3. Other branches of material production	4.Digital Economy	Final product	Gross output
	1.Industry	30.6	10.3	5.3		
2. Agriculture	15.3	4.9	0.8	8	28	49.0
3.Other branches of material production	10.2	2.1	2.1	4	16	30.4

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<b>4. Digital Economy</b>	<b>12</b>	<b>8</b>	<b>4</b>	<b>24</b>	<b>-</b>	
<b>Clean products</b>	<b>58.1</b>	<b>31.7</b>	<b>22.4</b>	<b>-</b>	<b>-</b>	
<b>Gross output</b>	<b>114.2</b>	<b>49.0</b>	<b>30.4</b>	<b>-</b>	<b>Gross output 169.6 +24=193.6</b>	

In this table, we have presented and highlighted the digital economy in order to clearly see its state for a separate period, observe changes and, accordingly, receive more detailed information about gross output both by industry and by the indicator as a whole.

Thus, in the intersectoral balance, the representation of the digital economy allows not only economists and management personnel to make

appropriate analysis and conclusions, but also all specialists in these areas to use the information provided more fully in a faster time, corresponding to real indicators. Indicators are presented in detail by industry, as well as a general indicator, which became possible with the emergence of such concepts as “Big Data”, blockchain, cloud spaces in the virtual world, etc.

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## FUNGI ISOLATED FROM SUCKING PESTS IN GREENHOUSE CONDITIONS AND THEIR BIOLOGICAL CHARACTERISTICS

**Abstract:** This article presents the results of the study on the efficacy of the use of entomopathogenic fungi against sucking pests found in the greenhouses in Kibray, Zangiota, Parkent, Yukorichirchik, Urtachirchik, Chirchik districts of Tashkent region.

**Key words:** Entomopathogen, fungus, biological control, pest, pure culture, Petri dish, suspension, sucking pest, conidia.

**Language:** English

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### Introduction

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In the world, cultivation of agricultural crops in greenhouses has been widely implemented in the last few decades and is developing rapidly. Because the production of agricultural products on protected land is distinguished by its productivity. In about 120 countries around the world, greenhouse production has become an independent branch of agriculture, and today, agricultural products are grown on more than 620,000 hectares of greenhouses worldwide. Of these, 402,000 hectares are occupied by vegetable crops, the main part of which is tomatoes, cucumbers, peppers

and lettuce. The yield and quality of vegetable crops grown in greenhouses are seriously damaged by pests and diseases. Various pesticides are widely used to control such harmful organisms. This leads to deterioration of the ecological situation. Therefore, in this case, biopesticides have a special place [1,2,3].

The use of chemical pesticides against the pests of the crops on protected land causes the emergence of the pests that are resistant to the standards of insecticides allowed for use in greenhouses. As a result, greenhouse whitefly, spider mite, russet mite, peach aphid and field aphids become dangerous pests. Increasing the amount of the preparation to be used, and the rate of application has a negative effect on the

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health of the workers in the greenhouse, it also leads to an increase in the toxic amount of the used preparation that remain in the products grown there [4,5]. Therefore, the use of entomopathogenic fungi as a biological control measure against these pests in greenhouse conditions is of great importance.

The studies were conducted on fungi isolated from sucking pests and some of their biological characteristics, and on the efficacy of using entomopathogenic fungi against the sucking pests in greenhouses in Kibray, Tashkent, Zangiota, Parkent, Yukorichirchik, Urtachirchik districts of Tashkent region.

Experiments were conducted on the bases of the study to isolate pure cultures of fungi from dead insects, to study their species composition and to determine their pathogenicity.

Diseased and dead samples of the greenhouse whitefly and field aphid collected from the greenhouses of the Tashkent region were planted in light agar nutrient medium in Petri dishes in a laminar box under sterile conditions.

It was found that the fungi isolated from the samples of dead and diseased greenhouse whitefly and field aphid common in the greenhouses of Kibray, Tashkent, Zangiota, Parkent, Yukorichirchik and Urtachirchik districts of Tashkent region belonged to 32 species.

As a result of the research, it was found that the species composition of the biotrophic fungi isolated from the sucking pests in the greenhouse was not so high, but mainly facultative parasites and saprophytic fungi were found more often. Biotrophic parasites were found to include: *B.bassiana*, *E. thaxteriana*, *E.coronate*, *E.virulenta*, *P.javanicus*, *P.variotti*, *S.brevicaulis* species, while facultative parasites include; *A.flavus*, *A.niger*, *A.ochraceus*, *C.acremonium*, *F. sambucinum*, *F.lateritium*, *M.hiemalis*, *R.nigricans*, *S.alternansm* fungi species. The rest of the isolated fungi were noted to be saprophyte species.

Based on the results of the research, among the fungi isolated in the greenhouses of Tashkent region, it was found that the diseases of the greenhouse whitefly and field aphids were mainly caused by

*P.variotti* and *B.bassiana* fungi belonging to *Deuteromyces* class.

Entomopathogenic fungi were grown in artificial nutrient media and studied for their pathogenicity against greenhouse whitefly in laboratory conditions. Several strains of these fungi were tested for their pathogenicity against different ages of greenhouse whitefly. When artificially infesting greenhouse whitefly with the suspension of *P.variotti* and *B.bassiana* fungi, the symptoms of the disease in insects were the same as the external symptoms typical for diseases caused by the same entomopathogenic fungi.

The obtained results showed that EMR-57 and EMR-36 strains of *P. variotti* manifested high virulence against the larvae and nymphs of the whitefly, it made 31.0% and 24.2% in 3 days and 57.0% and 64.9% in 7 days, 62.4% in 65.9% in 14 days compared to the number of pests before treatment. EMR-57 strains against imagos manifested 11.8% in 3 days, 62.3% in 7 days and 63.5 in 14 days. The virulence of EMR-33 and EMR-20 strains against larvae and nymphs was 17.8% and 11.4% in 3 days, 41.4% and 31.8% in 7 days and 53.5% and 43.2% in 14 days. Against the imagos, this indicator was 5.6% and 6.5%, 21.1% and 18.2%, and 43.7% and 57.1%, respectively. The EMR-5 strain virulence was 12.2% in 3 days, 29.8% in 7 days, and 33.0% in 14 days against larvae and nymphs, while against imagos 4.3%, 10.5%, 38.6%, respectively.

Differences in virulence against the greenhouse whitefly were also observed among *B. bassiana* fungus strains. The virulence of EMV-71 strain against larvae and nymphs was 28.1% in 3 days, 59.5% in 7 days and 61.8% in 14 days. This indicator was 9.3%, 52.0% and 65.3%, respectively, against imagos. EMV-69 and EMV-8 strains infected 21.0% and 15.8% of larvae and nymphs in 3 days, 45.0% and 35.6% in 7 days, 55.0% and 48.9% in 14 days. EMV-69 and EMV-8 strains infected 7.2% and 4.8% imagos in 3 days, 51.8% and 41.7% in 7 days and 55.4% and 44.0% of imagos in 14 days.

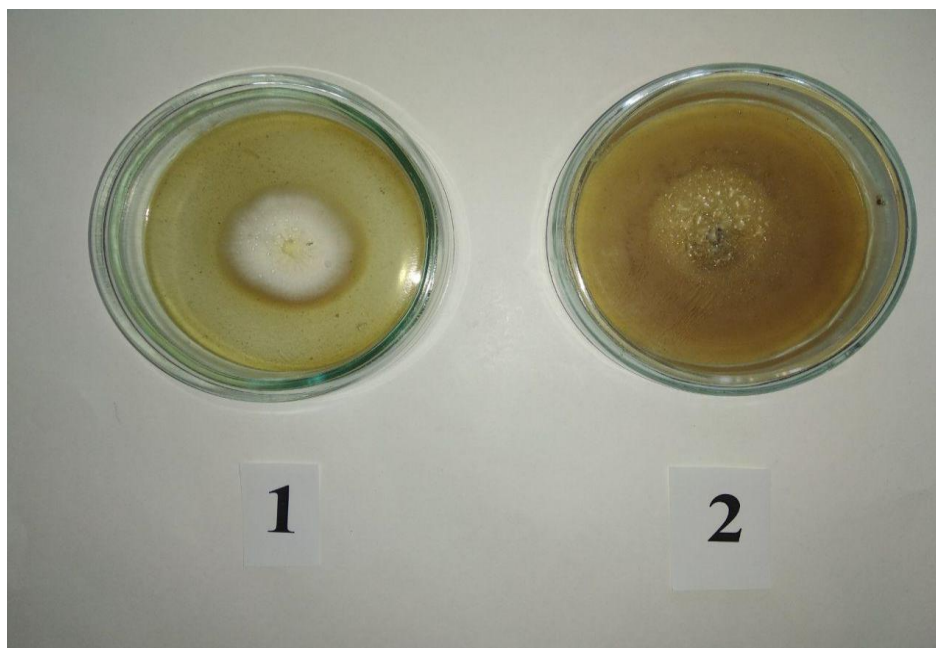
Eggs of the greenhouse whitefly were found to be relatively resistant to all these fungal strains.

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**Pic.1. fungi isolated from sucking pests in greenhouse conditions and their biological characteristics**

As a result of the conducted experiments, it was observed that the strains of entomopathogenic fungi differ from each other in their virulence characteristics at different stages of the development of the greenhouse whitefly from its egg stage to the imago.

By observing the development of the above entomopathogenic fungi, it can be concluded that the preservation of these fungi in laboratory conditions and saprophytic reproduction led to a change in the pathogenicity and virulence properties of their parasitic race and population in nature against insects in different extent.

When selecting strains of entomopathogenic fungi with high virulence, the main focus is on their virulence properties. Therefore, in the preparation of biopreparations, their properties were always studied and strains were chosen by selection methods. Among these methods, the easiest is to study the morphological and cultural characteristics of entomopathogenic fungi during the cultivation of pure cultures in laboratory conditions. Morphological-cultural characteristics of the fungus *B. bassiana* were studied in strains of pure cultures isolated from dead specimens in the greenhouse. As a result of the conducted experiments, when the morphological and

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cultural characteristics of the strains of *B.bassiana* fungus were studied, it was found that they have a heterogeneous nature. Phenotypic heterogeneity of entomopathogenic fungi indicates that they have great selective potential. This is the basis for concluding that it provides a great opportunity to isolate strains with high virulence and to use them as a starting material for creating effective biopreparations that are used against harmful pests and they do not have a negative impact on the environment.

One of the most important conditions for obtaining a preparation with high efficiency is the use of fast-growing and high-spore-forming strains isolated from the natural population of fungi.

In scientific studies, 37 strains isolated from the natural population of the fungus *B.bassiana* were used from diseased and dead specimens of sucking pests in the greenhouse.

In the selection of strains of entomopathogenic fungi, their rapid growth, speed of conidia formation, germination and virulence degree were taken as the main criteria. In addition, changes in their morphological and cultural characteristics were also studied when they were grown in different nutrient media. The mycelial growth and conidia formation rate of *B.bassiana* strains were observed for 25 days after inoculation in nutrient media. The most and

fastest formation of conidia of the entomopathogenic fungus was observed in the strains grown on potato nutrient medium. The observed difference in the relative growth rate of the strains grown on these media during the initial period was almost unnoticeable by 25 days. It was found that the titer of conidia produced by *B.bassiana* in the nutrient media was:  $32,4 \cdot 10^6$  kqb/ml in beer wort,  $15,7 \cdot 10^6$  kqb/ml in Chapek and  $68,9 \cdot 10^6$  kqb/ml in the potato medium.

The diameter of the colonies formed by the strains used in the experiment in different nutrient media differed little from each other. The strains of the fungus *B.bassiana* isolated from nature showed the highest results for all parameters in the nutrient medium of potato with peptone among the nutrient media available for the experiment.

Based on the results obtained on the basis of experiments, it was concluded that as the main criterion for selecting strains for the production of entomopathogenic biopreparation based on *B.bassiana* fungus, the titer of conidia produced by them, the rate of growth of strains in agar nutrient media and the rapid formation of conidia produced by them, dense colonies presence of conidia layer and virulence characteristics should be considered. At the same time, it is necessary to eliminate folds in the colony formed by strains.

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Issue

Article



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## IMPROVING THE TRANSPORT SYSTEM OF THE REPUBLIC OF UZBEKISTAN IN THE DIGITAL ECONOMY

**Abstract:** *this article discusses the measures taken to improve the country's transport system in the digital economy. The influence of the geographical location of the country on the economy of the country. The article also examines trade and economic relations between the countries, the dynamics of changes over the past four to five years in the field of transport and logistics.*

**Key words:** *transport and logistics potential, transit corridors, exports, geographical location of the country.*

**Language:** *Russian*

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## СОВЕРШЕНСТВОВАНИЕ ТРАНСПОРТНОЙ СИСТЕМЫ РЕСПУБЛИКИ УЗБЕКИСТАНА В УСЛОВИЯХ ЦИФРОВОЙ ЭКОНОМИКИ

**Аннотация:** *в данной статье рассматриваются меры предпринятые для совершенствовании транспортной системы страны в условиях цифровой экономики. Влияние географического расположения страны на экономику страны. А также в статье рассматриваются торгово-экономические связи между странами, динамика изменения за последние четыре пять лет в сфере транспорта и логистики.*

**Ключевые слова:** *транспортный и логистический потенциал, транзитные коридоры, экспорт, географическое расположение страны.*

### Введение

Географическое расположение страны оказывает огромное влияние на развитие экономики страны и от него зависит и политика страны. Страны с очень удобными климатическими условиями и природными ресурсами имеют очень большие возможности для развития экономики. Географическое расположение Узбекистана дает возможность для улучшения транспортной системы страны между другими государствами и её связи с ними, а также в будущем развития экономики страны. Особенно ее расположение в междуречье Амударьи и Сырдарьи, территории с севера и северо-востока страны, которые граничат с Казахстаном, с востока и юго-востока с Киргизстаном и Таджикистаном, с запада Туркменистаном, с юга Афганистаном.

Все это дает возможность и транзитные коридоры для выхода экспортируемых продукции на международные рынки.

В Узбекистане приняты меры по улучшению транспортного и логического резерва страны и создавать единой государственной политики в области развития автомобильного, железнодорожного, воздушного, речного транспорта, метрополитена, а также дорожного хозяйства, которые улучшают экономики страны.

### МЕТОДОЛОГИЯ

Указом главы Узбекистана от 1 февраля 2019 года создана Министерство транспорта, которое управляет развитием и регулированием всесторонним развитием экспорта, обеспечивающий устойчивый экспорт и росту объема для создания дальнейших улучшенных

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условий к внешнеторговым маршрутам. В 2020 году международные перевозки грузов страны составил 47,1 миллион тонн, среди них экспорт 13,3 миллион тонн (+17,2%), импорт 24,7 миллион тонн (+3,1%), транзит 9,1 миллион тонн (+15,3%). В стране выполняется комплексная программа развития транспортной инфраструктуры и по развитию новых внешнеторговых маршрутов по перевозке грузов на период с 2018 года по 2022 годы.

Кроме этого, в стране планируется осуществить «Стратегию развития системы Республики Узбекистан до 2035 года», в которой дает условия роста объема и качества пассажирских и грузовых перевозок, совершенствование системы управления транспортных секторов, внедрение новых подходов к переподготовке и повышению квалификации работников в транспортной системе.

Центральная Азия — это транспортно-проход в мировые транспортные системы и рынки. Есть такие замкнутые страны, где выход к ним приводит к большим затратам и создает проблемы. Но чтобы решать такого рода проблемы, эти страны прибегают к взаимодовериям в дружеской атмосфере между странами.

Например, у нас в республике идет строительство железной дороги Узбекистан

Киргизстан и Китай. Этот проект будет важным звеном в региональной транспортной сети для «Восток-Запад» и «Север-Юг», который выходит к международным морским портам, для географических и замкнутых государств Центральной Азии. И это активизирует региональные транспортные сотрудничества, укрепляющие торговлю внутри Центральной Азии, а также развитию торговое экономическое сотрудничества. За 2017 по 2019 годы товарооборот между странами Центральной Азии вырос почти в 2 раза с 2,7 миллиарда до 5,2 миллиарда долларов.

Несмотря на влияние пандемии в Узбекистане торговые и экономические отношения и товарооборот между государствами в Центральной Азии за январь-октябрь 2020 г. составил 3,8 млрд. долларов. А также, Узбекистан делает проекты, которые могут соединить пути Центральной Азии через Афганистан с Пакистаном и Ближним Востоком, дающий выход между государствами Южной Азии и Ближнего Востока на рынок СНГ и Европы. И еще, Узбекистан строит железную дорогу Мазари-Шариф-Кабул-Пешавар, который выходит на пакистанские порты Гвадар и Карачи. Реализация этих проектов поддержали многие страны: Россия, Китай, США и ряд международных организаций, Всемирный банк.

Рис.1. Взаимная торговля (товарами) между странами ЦА в 2020г. (в млн.долл.)

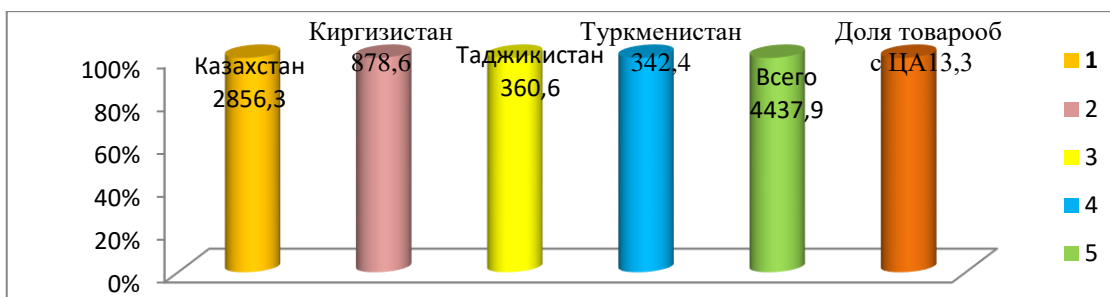
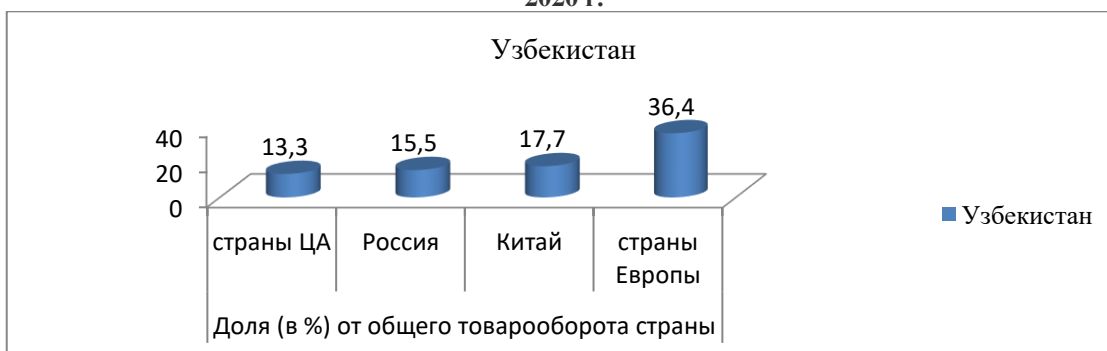


Рис.2. Показатели распределения долей в общем товарообороте стран ЦА по странам и регионам в 2020 г.



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За последние годы нашей стране произошли много изменений в области развития транспорта и транспортных коммуникаций и снабжать ее большим степенью безопасными перевозками. Стала развиваться система управления в транспортном направлении и подготовка квалифицированных специалистов для данной отрасли. Здесь значительное роль сыграло реформы, которые проводит наше правительство, направленное на формирование и реализации единой государственной транспортной политики, достигающее доступности и качественных транспортных услуг учитывая расположения республики. В этих целях в нашей стране приняты Стратегия действий по пяти приоритетным направлениям развития Республики Узбекистан в 2017 — 2021 годах. Целью является формирование и продолжение развития железнодорожной отрасли, как неотъемлемой части экономики Республики Узбекистан, увеличение транспортного и транзитного потенциала страны, создание новых рабочих мест, повышение уровня локализации продукции, ведение скоординированной политики в области транспорта и технического регулирования, а также обеспечение безопасности и повышения уровня комфортабельности и надежности движения поездов, повышение инвестиционной привлекательности железнодорожного транспорта.

Наряду с этими, осуществляется меры по развитию цифровой экономики и введением современных информационно-коммуникационных технологий во многие сферы, в том числе в государственное управление, в образование, здравоохранение и сельское хозяйство, в транспортную сферу. Идет осуществление свыше 220 приоритетных проектов, рассчитывающих совершенствование системы электронного правительства, дальнейшее развитие отечественного рынка программных продуктов и информационных технологий, организацию во всех регионах республики IT-парков, обеспечение данной сферы квалифицированными кадрами. Кроме этого, осуществлены набор программ «Цифровой Ташкент», показывающий запуск геопортала, сливавшиеся с более 40 информационными системами, создание информационной системы

управления общественным транспортом и коммунальной инфраструктурой, цифровизацию социальной сферы с последующим распространением данного опыта на другие регионы. Одним словом, в республике идет ускорение в развитии цифровой и транспортной индустрии.

Итак, в завершении можно сказать, что для развития и совершенствования транспортной системы и цифровизации страны в республике приняты ряд мер и реформ. Из анализа экспорта транспортных услуг за 2020 год можно сказать, что экспорт транспортных услуг в республике представлен шестью основными видами: перевозки железнодорожным, автомобильным, воздушным, трубопроводным транспортом, а также почтовыми услугами и услугами курьерской связи, прочими сопутствующими и вспомогательными транспортными услугами. Экспорт транспортных услуг представляет собой оказание международных транспортных услуг национальной транспортной компанией при пересечении грузом государственной границы страны или при перевозке груза, принадлежащего иностранному грузовладельцу. Экспорт транспортных услуг обеспечивает значительные валютные поступления в страну и способствует развитию внешних интеграционных связей. В 2020 году объем экспорта транспортных услуг составил 14327,9 миллиард сумм, что на 1342,5 миллиард сумм (или 8,6%) меньше показателя 2019 года. Но это снижение показателя было связано с пандемией.

## ВЫВОД

В республике появляются элементы логистического обеспечения торговли и транспортных перевозок грузов. Принимаются меры по налаживанию механизма для эффективного использования информационных технологий, транспортных перевозок и транспортной инфраструктуры. Тем самым решаются задачи, удовлетворяющие постоянный рост спроса со стороны национальных и зарубежных компаний на услуги складских и логистических центров нашей республики, которые сокращают расходы конечную стоимость товаров и услуг.

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Article



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## MECHANISMS OF DEVELOPMENT OF YOUTH CONSCIOUSNESS AND THINKING UNDER GLOBALIZATION

**Abstract:** In this research, the characteristics of the globalization process, its manifestations are studied based on the interpretation of the researches of local and foreign scientists, as well as the negative consequences of this process: spiritual threats, human freedom, his spiritual world, ideological and informational threats directed against our peaceful life, the consciousness of young people in protecting against information attacks and development of thinking, elimination of social problems, radical improvement of the activity of educational institutions, further increase of responsibility of educational subjects were analyzed as leading issues. Also, several effective ways to combat information threats, the factors that protect young people from the negative effects of globalization and mass culture have been studied. As a negative impact of the globalization process on the youth, the change in the mentality of the people and the nation, the question of how to protect the youth of our country from violence, corruption, immorality, and popular culture, which threaten the minds of the youth of our country due to the process, are analyzed, and the necessary recommendations are presented.

**Key words:** globalization process, ideological threats, information attack, moral degradation, "globalophobia", youth policy, mentality, mass media, ideological influence, educational subjects.

**Language:** English

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### Introduction

Any product of development can be used for two different purposes, i.e. for good and evil purposes. Today's globalization process also calls for humanity to be more alert and awake in this regard. Globalization, while creating unprecedented opportunities for humanity, also poses serious threats. Since the middle of the 20th century, the UN has been conducting a targeted operation on state policy regarding youth. Its main goal is to attract the attention of youth organizations to the global problems of humanity, to ensure wide participation of young people in the life of society, to create conditions for expanding cooperation between local and international youth organizations dealing with sustainable development issues on a global scale.

A number of countries consider youth policy as part of a socio-economic development strategy to ensure youth employment and civic engagement. The

final result of these measures is the social development of young people, ensuring their active participation in the life of society and the state. Despite the differences in the structural organization of youth policies in countries, the existence of relative uniformity in the provision of key priorities in many countries is a sign of globalization. Education, employment, hunger and poverty, health care, environment, drug addiction, housing problem, youth crime, gender policy are among the main directions of the state policy regarding youth, defined by the international community. A number of studies highlight the increasing attention to youth issues in the world, which indicates the increasing role of states in supporting them. If we analyze the approaches of the



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countries of the world in the youth policy, in Russia and Central Asia, high activity of the state and non-governmental organizations is observed in the youth policy of the European and American countries. In recent years, in the state policy of Uzbekistan, a lot of attention has been paid to the development strategies of the country's legal framework, so that young people can take their rightful place in life. **The main goal of our research is** to study the real severity of the current situation, the negative long-term consequences, to reveal the initial symptoms, and to warn of the existing danger. In order to eliminate the negative consequences of globalization, it is necessary to study, analyze and develop a system of measures based on the mysteries of the phenomenon, the spheres of manifestation, tools and mechanisms that implement it. In this research, the development of youth consciousness and thinking was analyzed as a leading issue in the prevention of spiritual and informational threats.

**The aim of the research is** to determine the mechanisms of development of the mind and thinking of young people in order to protect against the negative effects of globalization.

**LITERATURE ANALYSIS AND METHODS.** The process of globalization is one of the topics that is widely studied in the world. The reason is that the process covers all areas and there is no way to stay away from it. Russian researchers **V.G. Fedotova, V.A. Kolpakov, N.N. Fedotov**, assessing globalization as a process of social changes that have occurred in the last twenty years, include the following in these social changes:

- formation of a single world market;
- global information openness, emergence of new information technologies;
- the strengthening of global cultural relations between peoples and

English sociologist **E. Giddens** emphasizes that globalization is not a single process, that is, it is a complex combination of a number of processes, in which they develop inconsistently and even in opposite directions. **N.M. Gamidova** in her research Globalization refers to the strengthening of social relations connecting different countries and nations, and it is justified that young people are more active in the globalist worldview compared to other demographic groups. **M. O. Mnatsakanyan** considers the advancement of information technology as a primary tool for increasing process activity.

**Sh.N. Taylakov**, one of the local researchers, analyzed the ideological and ideological immunity of young people on the basis of mass media as a leading issue in the process of globalization. **Rajapov** pays a

lot of attention to the problems of socialization of young people in the process of globalization. To this topic approach k'plab in topics ma h alli and foreign scientists have carried out research. The methods of generalization, comparative analysis, analysis and synthesis were used in the research process.

**RESULTS.** Today, the rapid spread of information, on the one hand, causes the development of science and technology, the development of the intellectual potential of young people, and on the other hand, it complicates the issue of protecting young people from ideological and ideological threats with malicious goals. The first president of Uzbekistan, I.A. Karimov, rightly said that it is impossible to stand aside from the process of globalization: **"In such a situation where the world information space is expanding more and more, it certainly does not correspond to the demands of the time and our noble goals"**. In fact, the threat to the people's spirituality is carried out within the framework of the political and economic interests of some countries, aiming at a long-term goal. A threat to morale is the security of the country, which leads to a crisis in society against its national interests.

If we dwell on the general description of the globalization process, the main parameters of modern globalization include such areas as economic, political, information and communication globalization, cultural globalization, environmental threats, security interdependencies.

### Aspects of the globalization process are:

1. The desire to homogenize the world, adhere to a common culture, values, behavior in accordance with generally accepted norms in accordance with common principles, and in general, the desire to universalize everything
2. Naturally growing interdependence, integration of separate forms.
3. The formation of a single, integrated universal society.<sup>3</sup>

There are negative consequences of the impact of globalization on the value system. This is explained by the criminalization of the minds of young people, allowing the depreciation of moral values. Since the end of the 1990s, the anti-globalization sentiment known as **"glabalophobia"** has increased significantly.

Analyzing the negative impact of globalization on young people, the western mentality is replacing their eastern mentality. In this process, a painful question arises as to how to protect the youth of our country from the violence, corruption, and immorality of the western life and mass culture, which threatens their minds. Due to lack of development of life

<sup>1</sup><https://cyberleninka.ru/article/n/molodezh-v-epohu-globalizatsii>

<sup>2</sup>. Resolution PF 842 of the President of the Republic of Uzbekistan of April 1994 "On the establishment of the Public Center of Spirituality and Enlightenment of the Republic"

<sup>3</sup> Dobrenko V.I., Nechaev V.Ya. Obo'estvo i obrazovanie.-M., 2003.S.226-228.

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experience and lack of taste formation, the biggest recipients of western surrogate products are young people<sup>4</sup>.

**O. Spengler**, globalization is not a civilization, but a phenomenon. Because the content of the process has no cultural content. It is the youth who suffer most from the economic and social problems occurring in the world. It is natural that young people, who are considered the main and integral part of society, face problems in each of these processes. So, first of all, young people will have to master the manners of the new planet and learn to live based on it.

**In any country, young people perform the following social functions:**

- inherits the achieved level of development of society and the state;
- is the main object of education and upbringing, socialization and adaptation;
- acts as a leading subject of social movements;
- is the main labor resource in economic production;
- has a social reproductive function;
- that he is responsible for the preservation and continuity of the values of his ancestors and the development of society, and

The creative imagination, abilities, ideals and initiative of young people are of great importance in the continuous progress of the society. **If we analyze the process of cultural globalization, it has two sides:**

- first, the spread of western values among the world's population, especially among the youth;
- secondly, the spread of institutional practices such as economic efficiency values and political democracy in the West.

As a result of cultural globalization, western-style culture has entered the world and many countries are losing their nationality. **M. O. Mnatsakanyan** describes the nature of the globalist worldview and says: The most important globalist elements and connections that are widespread and perceived in the human mind are the possibilities of new information and communication technologies, the Internet, mobile global communication and other means of communication.

**Anthony Giddens**, one of the theorists of globalization, said about the process of the erosion of nationality, **"The influence of traditions and customs on our lives is decreasing day by day, this is a positive process, because it gives a person a personal freedom that has not been achieved so far."** It is not difficult to understand the danger behind this bitter truth. Nowadays, ideological and informational threats directed against human freedom,

his spiritual world, and our peaceful life are manifested in the following forms:

- export of democratic values;
- An attempt to restore the caliphate based on Islamic fundamentalism;
- propaganda of immorality;
- popular culture;
- moral degradation and

Today, the formation of the global information society continues rapidly throughout the world, and more and more countries are participating in this process. The development of information technologies in the society requires young people to have deep knowledge and thinking, to have a broad worldview, to adapt to the demands of the intense era, and to be aware. Acceleration of the information process shows that a large part of society, especially young people, is not fully ready to effectively use the means and methods of obtaining, processing, assimilating and applying a large amount of information. Another peculiarity of the process of globalization is that it has become a sharp weapon of ideological influence and serves the interests of various political forces and centers<sup>5</sup>. Today, the issue of "information security" is emerging as a leading issue as a result of the attempts of several developed countries of the world to use the globalization process for their national interests and to dominate the world. In this process it takes strong thinking and knowledge to distinguish whether the received information is unbiased or biased, true or false. Globalization of information is one of the issues that has a positive and negative impact on the growth of young people in accordance with the requirements of society. Today's youth are extremely curious, absorb news instantly, and quickly receive any information. That's why we should be able to protect young people from the information that is being spread from various sources with a view to foreign goals.

**Information security consists not only of ensuring the security of computer networks, but also of protecting the infrastructure and the unified information space.**

In the second half of the 20th century, the popularization of the Internet system created the problem of information threats. An important feature of the information threat is characterized by a serious negative impact on all other areas. In order to distinguish between positive and negative information, the human mind must be developed, able to distinguish white from black, and the ability of information consumption culture must be developed. I.A. Karimov on the threat of information: **"Enlightenment has not lost its importance for us today and will not lose it. As long as we can educate**

<sup>4</sup> Gamidova N.V. Globalization and mentality of youth. -Ob sheh estvo i pravo.vyp. 2016. 2(56). S. 337-341.

<sup>5</sup> Jumaniozov H., Kadirov B. Information and youth education.//Modern education. 2015.5-No.-B.54 (54-58)

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intelligent and highly moral people, we will be able to achieve our goals, prosperity and development will be decided in our country. "If we don't solve this problem, all our obedience prayers will be for nothing: there will be no development, no future, no prosperous life!"<sup>6</sup>. Today, people, including young people, get information of various contents in their daily life, educational process, work activities through information media. Television is not mobilizing its potential for full education, on the contrary, it is promoting the most negative patterns of social behavior. Today, television is giving more emphasis on shows and broadcasts in order to gather more audience, that is, viewers. As a result, the process of protecting our youth from the influence of popular culture and globalization is becoming more difficult. "Sessionmagazine.com" According to the magazine, the number of scenes related to sexuality in US television programs almost doubled between 1999 and 2000 compared to 1997 and 1998 : one in ten programs featured sexual intercourse, and 7% of music videos were about it. Two-thirds of the Hollywood films of 2001 were found to be of the same content<sup>7</sup>. As a result, minors lose their innocence by seeing "life behind the curtain". Taking into account the great role of the information environment he receives in the spiritual development of a person, it is appropriate for parents, pedagogues of educational institutions to pay attention to what our growing young people see and listen to. According to experts in the field of information psychological security, one of the best ways to fight information threats is for the country to provide itself with information and the information should be complete, high-quality and truthful, otherwise no one can prevent the members of society from contacting various destructive sources. Because human psychology has such a feature that if it cannot get any important and necessary (including official) information within 3-4 hours, it fills the existing information gap with all kinds of fabrications and rumors. **Candidate of political sciences Kh. Jumaniyazov** emphasizes that the first source of threat to information-psychological security is the person himself<sup>8</sup>. The potential of the mass media in shaping social consciousness and educating young people is extremely large. Currently, as a result of democratic reforms in our country, mass media are performing their activities openly and freely. One of the fastest means of the information space is the Internet system. For information, we should say that the headquarters of Uzbekistan was connected to the

Internet system in America for the first time in 1996. Internet is one from the side a person thinking develops second by , from fruitless use sh a person and q steals the tin , the uncontrolled use of it by the growing generation shortens the period of childhood, causes the loss of innocence. According to statistics, 3.8 billion people of the world's population use various sites of the Internet every day. This means 70% of the world's population. 40% of them are young people under the age of 28, 22% are middle-aged, and 8% are elderly. But it's a pity that not everyone has a well-developed consumer culture. Mass media have a great responsibility and task in educating the next generation. For this reason, the information given through various means during the educational process should be aimed at reducing as much as possible the risk of young people falling into the surface of psychological dependence. Being able to share information opens the door to great opportunities and calls people to awareness. The Internet system contains destructive and aggressive ideas that are foreign to our national ideology and do not correspond to our spirituality. Especially in recent years, the increase of pages promoting information that poisons the human mind - aggressive, militant, murderous, lying and other information that is contrary to humanity and society - calls on all of us to be aware. **Odnaklassniki , Facebook, Twitter, You Tube** like social in networks \_ we will witness that young people are arguing pointlessly<sup>9</sup>. At the moment, a sharp division and stratification is taking place in society precisely in the field of obtaining information and finding a way to it. In this regard, talented young people show a high level of activity due to their mobility and desire for innovation, as well as having timely resources. Relative passivity is observed in the youth of the second group<sup>10</sup>. This in turn creates negative problems. Regarding the fact that youth education has become a common problem for all countries, the President of the Republic of Uzbekistan, Sh. Mirziyoev, said at the 72nd session of the UN Assembly that young people are the largest generation in the history of mankind, that they make up 2 billion people, that most of the crimes related to extremist activity and violence are committed by young people under the age of 30. noted separately. Sh. Mirziyoev " **The tomorrow, the well-being of the planet Earth depends on how our children grow up to be human beings. Our main task is to create the necessary conditions for young people to show their potential, to prevent the spread of the "virus" of the idea of**

<sup>6</sup> Karimov I.A. We build our future with our own hands. Works, Volume 7.-T.: "Uzbekistan", 1999.-129p.

<sup>7</sup> <http://www.aao.org/advocacy/childhealthmonth/media.htm> .

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violence. For this, we believe that it is necessary to develop multilateral cooperation in the field of social support of the young generation and protection of their rights" - the generalized international legal document aimed at the formation and implementation of youth policy in today's conditions of rapid development of globalization and information communication - UN's "Youth proposed the development of an international convention on human rights . He emphasized that the countries that sign this document must undertake strict obligations to raise this sector to the level of one of the main and important priority areas of their social policy <sup>11</sup>.

The acceleration of today's information process is the reason for the increase of moral threats. This, in turn, requires the development of ideological preventive measures against moral threats in a comprehensive manner, that is, the implementation of stronger and more effective methods of influence in the education of young people. **We must recognize that young people become victims of moral threats due to the following factors:**

- Low level of religious and moral education in the family;
- Ignorance of young people, lack of specific goals in life;
- social problems in the country: unemployment, poverty, etc.

In our opinion, one of the effective ways to fight information threats is to provide the country with information itself. Of course, such information must be of high quality and truthful, otherwise young people will turn to foreign sources even more, and no one can stop it <sup>12</sup>.

**In this regard, it is necessary to pay attention to the following in the education of young people:**

- Improving the educational potential of the family;
- Implementation of systemic reforms against economic and social problems in the country;
- Creating conditions for young people to find a decent place in life: ensuring youth employment, reforming the education sector.

The famous philosopher I. Kant says that the two great inventions of mankind are very complicated and have not reached the end of man, these are management and education <sup>13</sup>. Man is a creature in need of education. Humans, unlike animals, consciously control and direct their behavior. In the

formation of a person's worldview, his knowledge is of decisive importance, and ignorance is a shortcut to ignorance. In any country where the literacy of the people is low, naturally, the generation will grow up with slow thinking and a narrow worldview. We can see that ignorance is a product of ignorance because it is caused by the illiteracy, lack of purpose, and lack of education of young people who blindly follow the extremist movements that are happening in the world. In particular, if we take an example from the experience of Egypt, which faced a serious problem with Islamic fundamentalism in the 70s of the 20th century, the rise of extremism in this country was caused by the high level of illiteracy and poverty of the people.

**E.V. Reutov and T. According to V.Troshina's** sociological research conducted in 2015, 90.8% of Internet users are 15-24 years old, and the percentage of Internet users decreases with age.<sup>14</sup>

The Internet system is occupying the mind and thinking of young people like a spider's web. Young people have a distorted image of the world without a critical attitude. Due to the rapidity and unlimited possibilities of the Internet, the minds of young people are being virtualized.

**E. M. Dumnova** writes in this regard: "The Internet has firmly entered our lives, and its modern characteristic is the phenomenon of Internet addiction <sup>15</sup>. " The Internet space offers the opportunity to satisfy many needs, but as a result, users have an unrealistic, distorted image of the world. The inconsistency of the results of globalization is first of all manifested in the formation of the mentality of young people.

**DISCUSSION.** of society spiritual the basics in conservation grow up coming of young people consciousness and thinking time requirements based on development, primarily related to the reform of the education sector. Achieving a good result from education requires proper organization of education. Nationality and identity of the nation, the people in the era of globalization It is one of our main tasks to firmly inculcate the foundations of national education in the upbringing of children. The first stage of national education certainly begins with the family. A legitimate question arises. In today's modern society, what are the problems in raising children in accordance with society's requirements? Children are one of the main social problems in the conditions of globalization upbringing problem h is calculated. **If**

<sup>11</sup>Mirziyoev Sh.M. Speech of the President of Uzbekistan at the 72nd session

UN General Assembly. - People's word, 20.09.2017.

<sup>12</sup> Sh. Minovarov. The importance of national-religious traditions in encouraging young people to be well-rounded in all aspects, encouraging them to social and creative activity/Social activity of young people in a modernizing society: problems and solutions. Collection of articles of the republican scientific-practical conference. Tashkent. 2020. -B.8.(297)

<sup>13</sup> I. Kant. About pedagogy. Tashkent-2013.-B.(232)

<sup>14</sup> Reutov E.V., Troshina T.V. Internet - practical and informative predposteniya //Sotsiologicheskie issledovaniya . 2015. No. 4.-R.-142.

<sup>15</sup> E. M. Dumnova . *Mentality mentalnost v sotsiokultuonom prostranstve btiya rossiyskoi molodyoji*. Novosibirsk, 2013.

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**we look at the essence of the problem, parents' lack of education or neglect in raising children is manifested in the following cases:**

- The fact that our national educational values are not reaching the next generation due to the desire of young families to live independently
- lack of sufficient skills and experience in raising children;
- assessment of the parents' fulfillment of their parental duties, mainly by fulfilling their material support in the upbringing of children;
- insufficient attention is paid to the preschool period, when the child's interest in the world around him is at a high level;
- cases where parents do not penetrate the inner world of their children due to their low educational potential and are unable to guide them in life.

The family does not pay enough attention and love to the upbringing of the child, the child starts to receive upbringing not from the family, but from the street, the Internet and other sources. European life of modern parents, non-observance of national values causes the growing generation to grow apathetic and lazy, and their love for themselves more than the norm, in turn, causes the formation of egoism. The great Islamic theologian **Imam Ghazali's work "Ihyou Ulumud-Din"** says: "A child is a trust in the hands of parents.

His heart is free from various patterns and images, he accepts what is patterned, and what he is inclined to, he becomes inclined. If he is encouraged to do evil and is left free like an animal, he will suffer evil and perish..."<sup>16</sup>

The success of education is a factor that ensures the sustainable development of society. In the conditions of globalization, new milestones of international character are being formed in the field of education. **V. Beck** says that by investing more in education, it is possible to understand transnational conflicts in the world, to form a conscious and realistic attitude to the existing reality, based on the development of the consciousness and thinking of young people. Today, the link that can introduce new ideas into the education system is the higher education system. We can include the following among our youth who are most likely to be negatively affected by globalization:

- not having a fixed higher goal;
- lack of occupation of a certain profession;
- lack of a serious attitude towards life;
- the formation of a narrow worldview as a result of ignorance;

- not having one's own firm opinion, approach, the formation of a soft character;
- low educational environment in the family;
- western upbringing of children as a result of introduction of European way of life to young families, etc.

**Among the factors that protect young people from the negative effects of globalization and mass culture, the following can be included:**

- development of measures to improve parents' knowledge and responsibility in raising children;
- to eliminate the disparity between types of education in the educational system, to organize quality education based on common goals and private interests;
- attract more investment in educating young people to be educated, broad-minded, and possess a specific profession in accordance with the requirements of the globalized society;
- on the basis of the transnationalization of educational programs of the higher education system, to teach young students to understand and overcome intercultural relations, conflicts and difficulties.

One of the important tasks is to eliminate social problems, including unemployment, in protecting young people from the negative effects of the process of globalization of society. Because young people, who are considered the main layer of the population in the Central Asian republics, are leaving as migrants to European countries due to unemployment. As a negative aspect of this, we can see deviations from the norm of oriental manners in them, deviant behavior in some of them (living without marriage, promiscuity, addiction to alcohol). In some countries, there are problems with providing employment to personnel with higher education. In this regard, the positive experience of European higher education in the youth issue is that we can see the possibility of general employment of young people as the main way to develop youth mobility.<sup>17</sup>

**Summary.** Today's globalization has a negative and positive effect on the change of values among young people, and in the current, problematic period, all educational subjects, including parents, educational institutions, social institutions, and members of the state and society in general, should act in unison, raising their children not as a private matter, but as the most it is required to consider it as an important, global task of state and community importance. After all, mistakes made in the education of young people will inevitably have negative consequences in human society in the future.

<sup>16</sup> Taylakov N.I., Ernazarov A.E. Problems and solutions in raising children in the family in the process of globalization. / International scientific-practical conference on the topic "Globalization process in the world and the youth of Uzbekistan". T.: "Innovative Development Publishing House", 2020. -B.46.

<sup>17</sup> <https://cyberleninka.ru/article/n/globalizatsiya-i-mentalitet-molodezh>



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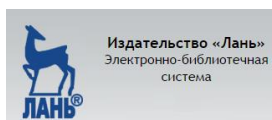
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