

UDC 519

## A HEURISTIC MODEL FOR EVALUATING THE MENTAL QUALITIES OF A LEADER

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In this paper, we propose a heuristic model for assessing the quality of human leadership in society. Such a model is based on an assessment of the psychological potential associated with his true self  $\mathcal{Y}_H$ , fantasy  $\mathcal{Y}_H$ , and willpower  $C_B$ . At the same time, introducing the concept of " $\mathcal{Y}_H$  - true self" consisting of three components:  $\mathcal{Y}_A$ ,  $\mathcal{Y}_B$ ,  $C_A$  *I*. Studying their interrelation, the concept of assessing the mental properties of the leader of society is put forward, that it is these psychological characteristics of the leader that determine the vector of development of society. A heuristic model of this concept is given. At the same time, it is argued that it is the  $\mathcal{Y}_H$  of the human psyche that determines the strength of a person's aura, which plays a decisive role in becoming a leader in a society. The experiment involved five groups of ten people each. The leaders of these groups were determined in each group. Comparing the  $\mathcal{Y}_H$  of these leaders showed that in order to become a leader, approximate equality between the components of  $\mathcal{Y}_H$  is necessary. At the end of the paper, an analysis of the results of the experiments is provided, confirming the proposed concept.

**Keywords:** fractal, ego, psyche potential, psychic energy, psychic power, model.

**Citation:** Rustamov N., Amirtayev K. 2025. A heuristic model for evaluating the mental qualities of a leader. *Problems of Computational and Applied Mathematics*. 2(64): 46-53.

**DOI:** [https://doi.org/10.71310/pcam.2\\_64.2025.04](https://doi.org/10.71310/pcam.2_64.2025.04).

## 1 Introduction

Everyone knows that a person's psychological energy largely determines the productivity of his conscious and unconscious activities. In fact, in practice, a person consciously or unconsciously makes extensive use of psychological energy in daily activities. In this activity, his position in the society where his activities take place plays a special role. For example, a person with stable and great psychological potential can be a leader, i.e. a leader in the development of the society where he is located. And a person with a strong psychological capacity has a great influence in society on his environment. In this regard, the assessment of a person's leadership quality in society is relevant.

The act of human activity in society is a complex formation that, not being just a mental process, goes beyond psychology into the field of physiology, sociology, etc., and includes psychological components within itself [1].

Taking into account these psychological components is a prerequisite for uncovering patterns of human behavior in general. Psychology has accumulated a lot of material that allows us to trace and evaluate the main stages of personality formation, confirmed throughout life by a variety of influencing factors, of which three are important, it is clear that such a division is conditional.

The first is the biological factor. It includes the laws of biological maturation and aging. This factor affects a person's willpower ( $C_B$ ). The second factor is the social environment,

which unites all types of social influences: both the influence of our close friends and relatives, and the entire state structure. It is in the "true self  $\mathfrak{A}_n$  consisting of three components: " $\mathfrak{A}$  - concept" ( $(\mathfrak{A}^{\mathfrak{A}})$ ), ego - ( $\mathfrak{A}^{\mathfrak{E}}$ ), self - ( $\mathfrak{A}^{\mathfrak{C}}$ ), the main energy force of the human psyche is hidden.

As you know, activity is the internal (mental) and external (physical) activity of a person, regulated by the subconscious mind with the help of the psyche. In order to be able to talk about activity, it is necessary to identify the presence of a conscious goal in a person's activity. It is precisely in the goal that a person's sociality is reflected and formed in his  $\mathfrak{A}_n$ . All this is reflected in the procedure of the individual's psychological trance act with the elements of society [2].

If fantasy can be represented in the form of three components  $\Phi$ : creative ( $\Phi^r$ ) – aimed at creating new images; reproductive ( $\Phi^p$ ) – aimed at processing old images to combine or improve them; imagination ( $\Phi^b$ ) – aimed at realizing fantasy.

Then the power of the will can also be represented in the form of three components. At its core, the psychological process is regulated by  $C_B$ , the human willpower. In turn, the strength of the will can be represented from three components: weak  $C_B^c$  – such a person will refuse in case of great need. steady willpower  $C_B^y$  – a person with steady willpower understands his desires perfectly and knows how to act the way he needs to; strong willpower  $C_B^{(C_B)}$  is when a person can without hesitation give up what attracts him strongly, but in fact he does not need at all.

Such a representation of these characteristics is, in principle, allowed as a concept. In this case, we can associate the human psyche as a fractal. Then all the energy information located in the human psyche is arranged fractally [3, 4].

**The purpose of the work** is a heuristic modeling of the assessment of a person's leadership quality based on the true self  $\mathfrak{A}_n$ .

## 2 Method

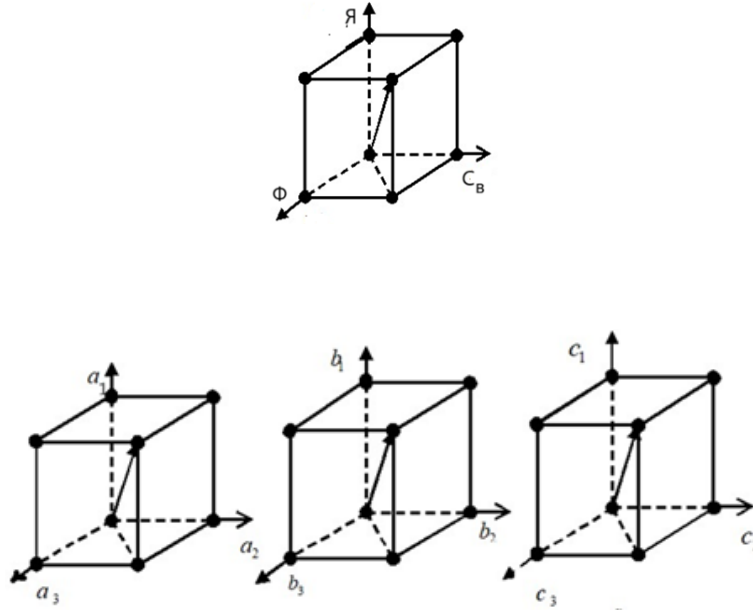
At its core, the nature of the human psyche has strength and resilience. Based on these two properties, the human psyche enters into a trance act in the society where it is located. Then the relationship of  $\mathfrak{A}_n, \Phi, C_B$  which makes up the potential of the human psyche, can be described as follows:

$$U \approx \mathfrak{A}_n \cdot (C_B + \Phi), \quad (1)$$

where  $U$  – is the potential of the psyche, true self  $\mathfrak{A}_n$ ,  $C_B$  – is willpower,  $\Phi$  is fantasy. In its content  $(C_B + \Phi)$  expresses the resilience of the psyche, the true self  $\mathfrak{A}_n$  – is the strength of the human psyche.

As you know, the social content of an individual is expressed in his goals [2], and the " $\mathfrak{A}$ -concept ego and self are concentrated in the true self  $\mathfrak{A}_n$ . Which are contained in a person's purpose and in his mental strength. On the other hand, to achieve his goal, a person participates in a trance act with the help of his imagination  $\Phi$  and willpower  $C_B$ .

Therefore,  $(C_B + \Phi)$  expresses the resistance of the human psyche [5–7]. In the spatial representation of the potential of the psyche, it can be conditionally represented as in Figure 1.-e.

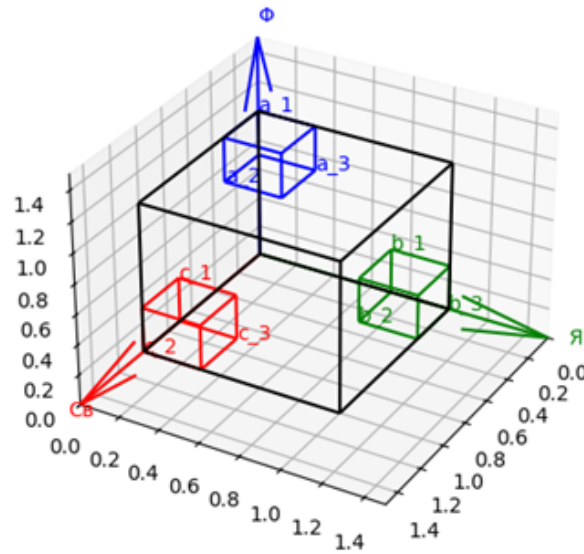


**Рис. 1** Fractality of the human psyche

In turn, the parameter  $\mathcal{Y}_n$  can be represented as Figure 1.-d, and respectively  $\Phi$  and  $C_B$ .

$$\begin{aligned}
 e : U &\approx \mathcal{Y}_n \cdot (C_B + \Phi), \\
 d : \mathcal{Y}_n : a_1 &= \mathcal{Y}^A, a_2 = \mathcal{Y}^B, a_3 = \mathcal{Y}^C, \\
 k : \Phi : b_1 &= \Phi^T, b_2 = \Phi^P, b_3 = \Phi^B, \\
 l : C_B : c_1 &= C_B^c, c_2 = C_B^y, c_3 = C_B^{(C_B)}.
 \end{aligned}$$

In essence,  $U$  is a type of energy information that we receive from the outside and is arranged in such a way as shown in Figure 2. All this shows the fractality of the construction of energy information of the human psyche.



**Рис. 2** Fractality of the human psyche

Based on these considerations,  $\mathcal{R}_n$  will be equal to the union of  $\mathcal{R}^A$ ,  $\mathcal{R}^B$ ,  $\mathcal{C}^A$ , respectively,  $\Phi$  will also be equal to the union of  $\Phi^T$ ,  $\Phi^P$ ,  $\Phi^B$  and  $C_B$  will be equal to the union of  $C_B^C$ ,  $C_B^Y$ ,  $C_B^{(C_B)}$ .

$$\begin{aligned}\mathcal{R}_n &\approx \mathcal{R}^A \cup \mathcal{R}^B \cup \mathcal{C}^A, \\ \Phi &\approx \Phi^T \cup \Phi^P \cup \Phi^B, \\ C_B &\approx C_B^C \cup C_B^Y \cup C_B^{(C_B)}.\end{aligned}\tag{2}$$

Such representations of energy information located in the human psyche allow us to model the process of evaluating human leadership.

In formula (1), the potential of the psyche has a fractal dependence on  $\mathcal{R}_n$  self-truth, in contrast to the one shown in [8, 18], i.e. the dependence of the potential of the psyche will be expressed as follows:

$$U \approx \mathcal{R}_n^{(1-D)} \cdot (C_B) + \Phi.\tag{3}$$

Here,  $D$  expresses the fractal dimension of the potential of the psyche. This dimension characterizes the measure of increase or decrease in the use of  $\mathcal{R}_n$ . When  $D = 1$ , we arrive at formula (1). This corresponds to a stable mental state. A person's uniqueness can be distinguished using  $D$ . Formula (2) is similar to the formula of B.Mandelbrot [9].

When conducting an experiment with formula (2), it turned out that a person has psychological similarities or differences with other individuals depending on the value of  $U$ , i.e. using the potential of the human psyche, it is possible to predict human nature. Where the essence of hu a person's  $U$  has global and local properties in society [11], which express the structure of the social and economic system [12, 13]. The global and local properties of the human psyche in the process of the mechanism of the trance act form social psychology. A person with a potential psyche with coinciding global and local properties has a fractal nature and is more likely to become a leader in his activities [14].

In [15], minimal psychological energy is needed so that a person can enter into a trance act.

$$W_M = (C_{B1} \cdot \Phi_1) \cdot (\mathcal{R}_{n1}) : 2/16\pi \approx 0.02(C_{B1} \cdot \Phi_1) \cdot (\mathcal{R}_{n1})^2.\tag{4}$$

If we denote it as  $k \approx 0.02(C_{B1} \cdot \Phi_1)$ , then formula (11) can be rewritten as follows:

$$W_M \approx k \cdot (\mathcal{R}_{n1})^2.\tag{5}$$

In terms of content,  $k$  – expresses a person's ability to how much they can fall under the influence of another person. The more  $k$ , the more psychic energy is required for influence, i.e., the less it is exposed to psychic influence and vice versa. In principle, this is the minimum mental energy for the formation of the social psychology of society. On the other hand, using this coefficient, it will be possible to assess a person's ability to withstand critical situations.

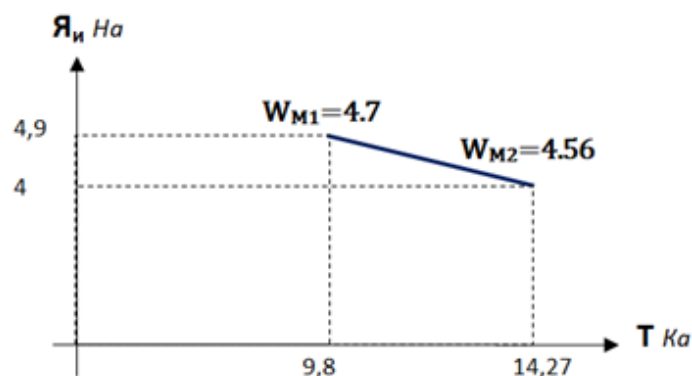
$W_M$  – is the psychic energy needed to enter into a trance act.

### 3 Results

In order to verify the objectivity of the proposed concept, an experiment was conducted. 50 people participated in the experiment. Five groups of 10 people were created from these people, in order to evaluate the leaders from each group.

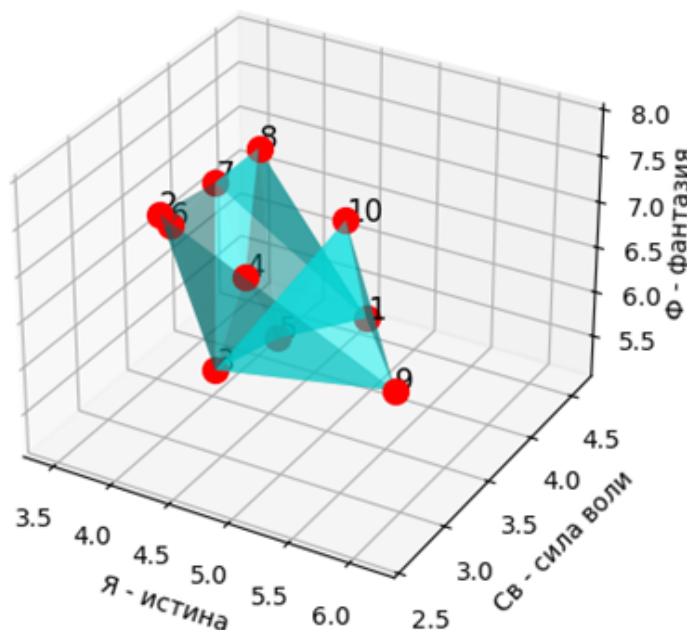
We had to choose a person with leadership qualities from these people. To do this, we conducted test surveys to assess the minimum mental energy. As a result, five leaders from each group were selected, based on which they have the maximum mental energy. Such an

assessment was made using the introduced metrologies of human psychological parameters [16] and the dependence of the proposed psychological parameters on psychological energies was constructed as shown in Figure 3.



**Рис. 3** Graph of the dependence of  $Я_n$  on  $T$

The graph shows a person who has a lot of psychological energy  $W_1 = 4.7wt$ . This man's  $Я_n$  is also high. Hence, we conclude that in any dependence, an increase in the value of the true self  $Я_n$  leads to an increase in the psychic energies of  $W_M$ . Based on these considerations, it can be concluded that the person claiming leadership should have a higher  $Я_n$  than the rest. For example, as shown on the graph, a person whose  $Я_n \approx 4.9$ ,  $Я_я \approx 1.6$ ,  $\Theta^a \approx 1.7$ ,  $C_я \approx 1.6$ . From this it can be seen that the components  $Я_n$  of the leader ( $\Psi_L$ ) are approximately equal, but  $\Theta^a$  each of them is tall. Of the five groups identified, five  $\Psi_L$  members have exactly the same pattern. Based on these considerations, a graph was constructed based on the Python program shown in Figure 4.



**Рис. 4** Graph of the evaluation of the leader's person

Here you can also calculate the results of the ego and the self of the corresponding values of  $\mathcal{R}_n$  for each of the five groups. When the values of  $\mathcal{R}^n$ ,  $\mathcal{E}^n$ ,  $\mathcal{C}^n$  of the true self  $\mathcal{R}^n$ ,  $\mathcal{E}^n$ ,  $\mathcal{C}^n$  are proximately equal to each other, then this person has a very high probability of becoming a leader. If we denote the person of the leader by  $\mathcal{C}_n$ , then the heuristic model for evaluating  $\mathcal{C}_n$  looks like this:

$$\mathcal{C}_n = \begin{cases} 1 & \text{if } \mathcal{R}^n \approx \mathcal{E}^n \approx \mathcal{C}^n, \\ 0 & \text{if } \mathcal{R}^n \neq \mathcal{E}^n \neq \mathcal{C}^n. \end{cases} \quad (6)$$

## 4 Conclusion

There is no doubt that the potential of the psyche determines a person's capabilities and guides his activities. On the other hand, based on the parameters of the psyche, it is possible to solve many practical Conclusions. There is no doubt that the potential of the psyche determines a person's capabilities and guides his activities. On the other hand, based on the parameters of the psyche, it is possible to solve many practical problems related to the choice of appropriate activities in society. Today, it is more important to predict the formation of the social psychology of society than to reform it.

There are many works related to the  $\mathcal{R}^n$  self-concept, which significantly affects the formation of the psychology of society. According to the concept put forward in this work, the true self  $\mathcal{R}_n$  of a person has a significant influence on the formation of social psychology. This approach reveals to us the essence, literally, of the leader of society. Assessment of the psychological essence of the leader of a society gives us the opportunity to predict the vector of development of this society [17].

As already noted, assessing the true self  $\mathcal{R}_n$  of the human psyche of a leader in a society can determine the orientation of the development of this society. At the same time, the connections between  $\mathcal{R}_n$ ,  $\mathcal{E}^n$ ,  $\mathcal{C}^n$  are revealed to us. It is these connections that determine the essence of the subconscious mind of the leader of society. Since the subconscious mind controls human activity through the psyche, the proposed heuristic model (2) is of great practical importance. The experiments conducted have shown the objectivity of our proposed concept.

It should be noted that the most important thing here is the development and formation of fractal social psychology. Because the fractality of psychology ensures sustainable human activity in society. In turn, such a psychology is formed in the individual's members from the ideology of the ostium. Heuristic modeling of leadership assessment can determine the vector of social development in advance. Knowing the patterns of formation of the fractal psychology of an individual, we can talk about the psychology of society. The fractality of social psychology determines the sustainable development of society.

The fractality of the potential of the individual's psyche gives us the opportunity to better understand the procedures of psychological interactions taking place in society [10]. The assessment of the fractal dimension of an individual's psyche characterizes these procedures. All this depends on the global and local properties of the individual's psyche. Therefore, a person can manage his activities based on his psychological potential and psychological strength. And the effectiveness of an activity depends on the psychological energy that a person possesses problems related to the choice of appropriate activities in society. Today, it is more important to predict the formation of the social psychology of society than to reform it. By evaluating the true mental self  $\mathcal{R}_n$  of a person who is a leader in a society, it is possible to determine the orientation of this society. The most

important thing here is the development and formation of fractal social psychology. In turn, such psychology is formed from the personal psychology of individuals in this society. Knowing the patterns of formation of an individual's personal psychology, we can talk about the psychology of society. The fractality of the potential of the individual's psyche gives us the opportunity to better understand the procedures of psychological interactions taking place in society. The assessment of the fractal dimension of an individual's psyche characterizes these procedures. All this depends on the global and local properties of the individual's psyche. Therefore, a person can manage his activities based on his psychological potential and psychological strength. And the effectiveness of an activity depends on the psychological energy that a person possesses.

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*Received March 18, 2025*

УДК 519

## ЭВРИСТИЧЕСКАЯ МОДЕЛЬ ОЦЕНКИ ПСИХИЧЕСКОГО СВОЙСТВА ЛИДЕРА

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В данной работе, предлагается эвристическая модель оценки свойство лидерства человека в социуме. Такая модель строится, на базе оценки психологического потенциала ассоциирующееся на его истинном  $Я_{и}$ , фантазии  $Я_{и}$  и сила воли  $С_{в}$ . При этом введя понятие « $Я_{и}$  - истинное» состоящих из трех компонент:  $Я_{д}$ ,  $Я_{э}$ ,  $С_{я}$   $I$ . Изучая их взаимосвязь выдвигается концепция оценки психического свойства лидера социума, что именно эти психологические характеристики лидера определяет вектор развития социума. Приводится эвристическая модель этой концепции. При этом, утверждается, что именно  $Я_{и}$  психики человека определяет силу ауры человека, играющая определяющую роль в становлении лидером находящем социуме. В эксперименте участвовали пять групп по десяти человек. В каждой группе определялись лидеры этих групп. В сравнении  $Я_{и}$  этих лидеров показало, что, чтобы стать лидером необходимо приближенное равенство между компонентами  $Я_{и}$ . В конце работы приводится анализ результатов проведенных экспериментов подтверждающая выдвинутой концепции.

**Ключевые слова:** fractal, ego, psyche potential, psychic energy, psychic power, model.

**Цитирование:** *Рустамов Н., Амиртаев К.* Эвристическая модель оценки психического свойства лидера // Проблемы вычислительной и прикладной математики. – 2025. – № 2(64). – С. 46-53.

**DOI:** [https://doi.org/10.71310/pcam.2\\_64.2025.04](https://doi.org/10.71310/pcam.2_64.2025.04).



# ПРОБЛЕМЫ ВЫЧИСЛИТЕЛЬНОЙ И ПРИКЛАДНОЙ МАТЕМАТИКИ

**№ 2(64) 2025**

Журнал основан в 2015 году.

Издается 6 раз в год.

**Учредитель:**

Научно-исследовательский институт развития цифровых технологий и  
искусственного интеллекта.

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Журнал зарегистрирован в Агентстве информации и массовых коммуникаций при  
Администрации Президента Республики Узбекистан.

Регистрационное свидетельство №0856 от 5 августа 2015 года.

**ISSN 2181-8460, eISSN 2181-046X**

При перепечатке материалов ссылка на журнал обязательна.

За точность фактов и достоверность информации ответственность несут авторы.

**Адрес редакции:**

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Тел.: +(998) 712-319-253, 712-319-249.

Э-почта: journals@airi.uz.

Веб-сайт: <https://journals.airi.uz>.

**Дизайн и вёрстка:**

Шарипов Х.Д.

Отпечатано в типографии НИИ РЦТТИ.

Подписано в печать 25.04.2025 г.

Формат 60x84 1/8. Заказ №2. Тираж 100 экз.

# PROBLEMS OF COMPUTATIONAL AND APPLIED MATHEMATICS

**No. 2(64) 2025**

The journal was established in 2015.  
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Karachik V.V. (Russia), Kurbonov N.M., Mamatov N.S.,  
Mirzaev N.M., Mukhamadiev A.Sh., Nazirova E.Sh., Normurodov Ch.B., Nuraliev F.M.,  
Opanasenko V.N. (Ukraine), Rasulov A.S., Sadullaeva Sh.A., Starovoitov V.V. (Belarus),  
Khayotov A.R., Khaldjigitov A., Khamdamov R.Kh., Khujaev I.K., Khujayorov B.Kh.,  
Chye En Un (Russia), Shabozov M.Sh. (Tajikistan), Dimov I. (Bulgaria), Li Y. (USA),  
Mascagni M. (USA), Min A. (Germany), Singh D. (South Korea), Singh M. (South  
Korea).

The journal is registered by Agency of Information and Mass Communications under the  
Administration of the President of the Republic of Uzbekistan.

The registration certificate No. 0856 of 5 August 2015.

**ISSN 2181-8460, eISSN 2181-046X**

At a reprint of materials the reference to the journal is obligatory.  
Authors are responsible for the accuracy of the facts and reliability of the information.

**Address:**

100125, Tashkent, Buz-2, 17A.

Tel.: +(998) 712-319-253, 712-319-249.

E-mail: [journals@airi.uz](mailto:journals@airi.uz).

Web-site: <https://journals.airi.uz>.

**Layout design:**

Sharipov Kh.D.

DTAIDRI printing office.

Signed for print 25.04.2025

Format 60x84 1/8. Order No. 2. Print run of 100 copies.

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И ПРИКЛАДНОЙ МАТЕМАТИКИ  
PROBLEMS OF COMPUTATIONAL  
AND APPLIED MATHEMATICS

