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Research Article

Mathematical Peace: Exploring the Role of Euler's Number in Global Strategy and Cooperation

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Abstract

Mathematics, humanitarian political leadership and world peace require a combination of these three issues, which is specifically considered as mathematical peace. This paper explores the concept of "mathematical peace" through the lens of Euler's number (e), a fundamental constant in mathematics. The study examines how Euler's number, known for its appearance in various fields of science and mathematics, can be used to model and foster cooperation, harmony, and conflict resolution in global strategies. Drawing on mathematical models, network theory, and systems theory, this paper seeks to demonstrate how Euler's number may offer insights into building frameworks for global peace. Mathematical Peace is a mathematical model for establishing world peace, the input of which will be humanitarian political leadership. The importance of humanitarian political leadership in establishing peace is immense. It is possible to monitor and verify the role that humanitarian political leadership is playing in establishing peace through mathematical modeling. Peace is a natural subject, like mathematics. Therefore, mathematics naturally has a close relationship with peace. By integrating mathematical constants into real-world applications, this research aims to highlight the potential for improved diplomatic relations, resource allocation, and conflict management.

Keywords

Euler's Number, Global Cooperation, Humanitarian Political Leadership, Peacebuilding, Mathematical Models, Network Analysis Model, Conflict Resolution

1. Introduction

The concept of world peace has been a long-standing aspiration across political, social, and economic spheres. While numerous strategies have been proposed to achieve peace, the potential role of mathematics, and specifically Euler's number (e), in facilitating global cooperation remains largely unexplored. Euler's number, approximately equal to 2.71828, plays a central role in many mathematical applications, including exponential growth, calculus, and complex systems. It is also integral to the study of networks and algorithms, which have been increasingly used in diplomacy, conflict resolution, and social interactions. This model (mathematical piece) will play an effective role in the analysis of positive and negative roles, cooperation, activities and humanitarianism of different countries in the establishment of international peace, which will contribute to the establishment of world peace.

This paper proposes that Euler's number can serve as a mathematical foundation for exploring frameworks that may facilitate global peace through strategic cooperation. The research delves into its application in systems theory, network optimization, and conflict resolution models to examine how

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this constant can be applied to address the complex nature of global conflicts and diplomatic challenges.

2. Literature Review

2.1. Global Cooperation Dynamics

Recent reports highlight a slight decline in global cooperation since 2020, attributed to geopolitical tensions and economic uncertainties. The Global Cooperation Barometer 2024 indicates a 2% decrease in cooperation across five key pillars: trade and capital, innovation and technology, climate and natural capital, health and wellness, and peace and security [7, 8]. This decline underscores the necessity for innovative approaches to reinvigorate collaborative efforts among nations.

2.2. Mathematical Modeling in International Relations

Mathematical models have been employed to simulate various aspects of international relations, providing insights into cooperation dynamics. For instance, studies have demonstrated how mathematical frameworks can predict outcomes based on different cooperation strategies, emphasizing the importance of reciprocity and mutual benefits in fostering collaboration [9, 10]. The application of Euler's number in these models can enhance the understanding of exponential growth patterns in cooperative behaviors.

2.3. The Role of Euler's Number

Euler's number (ee) is pivotal in modeling exponential processes, which are prevalent in social dynamics and international cooperation scenarios. Research indicates that incorporating ee into mathematical models can facilitate a deeper understanding of how cooperation evolves over time, particularly in contexts such as climate change negotiations and pandemic responses [11, 12]. The ability to model growth rates and decay processes allows policymakers to anticipate the effects of various strategies on global cooperation.

2.4. Case Studies on Cooperation Strategies

Several case studies illustrate the practical applications of mathematical modeling in promoting cooperation. For example, during the COVID-19 pandemic, mathematical models were instrumental in coordinating international vaccine distribution efforts [13]. Similarly, studies have shown that cooperative behaviors can be enhanced through strategic alliances and partnerships, which can be effectively modeled using mathematical frameworks that incorporate ee to analyze potential outcomes [14]

2.5. The Role of Mathematics in Peacebuilding

Mathematics has been used in a variety of peacebuilding efforts, primarily through game theory and economic models. Scholars like Nash [2] and Schelling [3] have employed mathematical models to study conflict, cooperation, and negotiation strategies. These models, particularly Nash Equilibrium, have helped frame how nations might behave in competitive or cooperative environments. On the other hand, the Z number ($Z = 2.83$) has been introduced, which is a newly discovered mathematical constant that represents the ratio of the perimeter of a square to its diagonal. [5].

2.6. Euler's Number in Complex Systems

Euler's number has found applications in various fields, such as biology, physics, economics, and network theory. In economics, e describes continuous growth and decay processes, while in physics, it underpins quantum mechanics and thermodynamics Euler [4]. Network theory, which deals with interconnected systems and the flow of information, has incorporated e to model diffusion processes, particularly in communication networks and social systems. We highlight the critical role of humanistic political leadership in shaping inclusive social and economic policies for poverty alleviation, [6] highlighting their implications, challenges, and policy implications for sustainable development, as demonstrated by exploring the role of the mathematical peace.

2.7. Network Theory and Peacebuilding

Network theory has been increasingly applied to diplomacy and conflict resolution. Researchers have used it to analyze the behavior of global systems, such as trade networks and international relations [1]. These models often rely on Euler's number as a constant that governs exponential growth patterns within interconnected systems, such as the spread of ideas or information.

2.8. Challenges and Limitations

Despite the potential benefits of mathematical modeling for fostering cooperation, challenges remain. The complexity of human behavior and the unpredictability of geopolitical events can limit the effectiveness of these models [15]. Furthermore, ethical considerations regarding data usage and privacy must be addressed when employing mathematical frameworks for international relations. [16]

3. Methodology

This study employs a qualitative and theoretical approach, integrating concepts from mathematics, systems theory, and international relations. The methodology involves:

3.1. Mathematical Modeling

To develop a mathematical model leveraging Euler's number (e) to simulate the dynamics of global cooperation and conflict resolution. The model focuses on:

1. Predicting the growth of cooperative initiatives
2. Optimizing resource distribution among nations to prevent conflict.
3. Modeling tipping points for conflict escalation and de-escalation.

3.2. Key Components of the Model

3.2.1. Variables and Parameters

Let:

1. *C (t):* Level of global cooperation at time *t* (normalize between 0 and 1).
2. *R (t):* Resource allocation efficiency at time *t* (normalized between 0 and 1).
3. *E (t):* Conflict escalation probability at time *t* (between 0 and 1).
4. *I:* Initial level of cooperation (input variable, C (0)).
5. *K:* Rate of growth or decay in cooperation (depends on humanitarian political leadership efforts).
6. *f:* External factors such as economic stability, climate change, and international crises (dimensionless constant influencing the system).
7. a, b, c: Scaling constants to normalize the variables.

(i). Cooperation Growth Model

We assume cooperation grows exponentially when positive interactions are maintained and decays otherwise, Using Euler's number:

$$C(t) = I.\, e^{k.t}.f$$

1. $k > 0$: Cooperation grows exponentially (effective leadership, trust-building).
2. $k < 0$: Cooperation decays exponentially (mistrust, conflict escalation).

(ii). Resource Allocation Optimization

Efficient resource distribution reduces conflict. Using an exponential decay model:

$$R\ (t) = 1 - e^{-b.t}$$

1. As time increases, R(t) approaches an asymptote, indicating optimal resource distribution.
2. b: A scaling constant representing the efficiency of global governance mechanisms.

(iii). Conflict Escalation Model

Conflict escalation in modeled as an inverse exponential function where poor cooperation increases conflict probability:

$$E\ (t) = e^{-c.C(t)}$$

C: A sensitivity constant, where higher values mean small changes in cooperation significantly impact conflict probability.

(iv). Combined Model

The Combined Model integrates the cooperation growth, resource allocation optimization, and conflict escalation models into a unified system. It describes how global cooperation, resource distribution, and conflict probabilities interact over time, guided by Euler's number.

The model consists of the following components:

1. Cooperation Growth: Cooperation grows or decays exponentially, based on leadership efforts and external factors:

$$\frac{dC}{dt} = k.C(t).(1 - E\ (t)).f$$

k represents the rate of growth or decay in cooperation.

E (t) is the conflict escalation probability, which decreases as cooperation increases.

2. Resource Allocation Optimization: Resource distribution improves over time and approaches an optimal state as resources are more efficiently allocated:

$$\frac{dR}{dt} = b.(1 - R\ (t))$$

b is a scaling constant, representing the efficiency of global governance mechanisms.

3. Conflict Escalation: Conflict probability decreases as cooperation increases, modeled as:

$$E\ (t) = e^{-c.C(t)}$$

c is a constant determining the sensitivity of conflict probability to changes in cooperation.

The combined model uses these differential equation to simulate the dynamics of cooperation, resource allocation, and conflict resolution. It provides a framework to identify tipping points where intervention is needed to prevent conflict escalation or optimize resource distribution.

(v). Tipping Points

To identify tipping points for intervention

1) Cooperation Threshold (Cth): The critical cooperation level below which escalation accelerates exponentially.

$$C_{th} = \frac{In\ (Emax)}{-c}$$

where E_{max} is the maximum tolerable conflict probability.

2) Resource Distribution Equilibrium (Req): Point at which resource allocation stabilizes:

$$R_{eq} = 1 - e^{-b.T}$$

where *T* is the stabilization time.

a) Implementation Steps
   1) Define Initial Conditions: Input values for C (0), R(0), and system parameters (*k, f, a, b, c*).
   2) Simulate Time Evolution: Solve the system of differential equations numerically to simulate cooperation, resource allocation, and conflict probabilities over time.
   3) Indentify Intervention Points: Locate C_{th} and analyze how changes in *k* or *f* effect C(t) and E(t).
   4) Policy Testing: Evaluate the impact of policy changes (adjusting k or b) on the stability of the system.

b) Visualization
   1) Cooperation vs. Time: Plot C(t) to show exponential growth or decay based on political leadership.
   2) Conflict Probability vs Cooperation: Visualize *E(t)* as a function of *C(t)* to highlight tipping points.
   3) Resource Allocation over Time: Plot R(t) to assess the effectiveness of distribution policies.

c) Potential Extensions
   1) Include stochastic variables to account for unpredictable geopolitical events.
   2) Integrate feedback loops, where *C(t)* influences *f* (external factors).
   3) Expand the model to multi-agent systems representing individual nations or regions.

This model serves as a theoretical framework to study the dynamics of global cooperation and conflict resolution, emphasizing the interplay of exponential growth and decay processes governed by Euler's number.

3.2.2. Network Analysis Model

In this methodology, we propose using Euler's number within the framework of network theory to analyze global cooperation, resource distribution, and conflict avoidance. The network analysis model will simulate how interactions between nations evolve over time and identify equilibrium states where peace and cooperation are achieved. This model will integrate key components such as cooperation growth, resource allocation, and conflict escalation, all driven by mathematical principles of exponential growth and decay.

(i). Key Assumptions

1) Nodes: Each country or region is represented as a node in the network.
2) Edges: Connections between nodes represent diplomatic, trade, or cooperative relationships between nations.
3) Interaction Effects: Positive interactions (cooperation) lead to exponential gorwth in global cooperation, while negative interactions (conflict) cause exponential decay in cooperation.

(ii). Network Variables

1) *C (t):* The level of cooperation between countries at time *t* (normalized between 0 and 1).
2) *R (t):* The level of resource allocation efficiency across the network at time *t* (normalized between 0 and 1).
3) *E (t):* The probability of conflict escalation at time *t* (between 0 and 1).
4) A_{ij} *(t):* the interaction strength between country i and country j at time *t*.
5) *K:* Rate of cooperation growth or decay, influenced by leadership, trust-building, and diplomacy.
6) *f:* External factors such as economic stability, climate change or geopolitical events.

3.2.3. Network Model Dynamics

The network model evolves over time as cooperation grows or decays, resources are distributed, and conflicts either escalate or de-escalate. The model is divided into three main components:

(i). Cooperation Growth Model

Cooperation between countries can be modeled as an exponential function, reflecting how positive diplomatic and cooperative interactions spread through the network. Cooperation grows or decays based on leadership, resource distribution, and external factors.

$$C(t) = C_0 . e^{k.t.f}$$

1) C_0 is the initial level of cooperation in the network at t = 0.
2) *K* is a constant representing the rate of cooperation growth (positive) or decay (negative).
3) *f* accounts for external influences, such as economic crises, that could affect the rate of cooperation.

This function simulates the dynamics of cooperation growth or decay over time, dependent on the ongoing interactions and external factors in the network.

(ii). Resource Allocation Optimization Model

Efficient resource distribution within the network helps prevent conflict. Resource allocation can be modeled using an exponential decay function, where the efficiency of resource distribution increases over time as nations cooperate.

$$R(t) = 1 - e^{-b.t}$$

b is a constant representing the efficiency of resource governance in the network. A higher b signifies faster convergence to an optimal resource distribution.

This model suggests that over time, the system moves toward an equilibrium state where resource distribution is stable, reducing the potential for resource-driven conflicts.

(iii). Conflict Escalation Model

Conflict escalation is driven by decreasing cooperation between countries. As cooperation decays, the probability of conflict increases exponentially. This relationship is captured using Euler's number in the following way:

$$E\ (t) = e^{-c.C(t)}$$

1) *c* is a constant determining the sensitivity of conflict probability to changes in cooperation.
2) *C(t)* is the level of cooperation at time t, influencing the probability of conflict.

This model shows how conflicts become more likely when cooperation falls below a certain threshold, creating tipping points where proactive intervention becomes necessary.

(iv). Network Dynamics and Interaction Strength

The strength of interactions between countries is influenced by their diplomatic ties and collaborative efforts. This interaction strength can be modeled using a dynamic adjacency matrix A(t), which defines the relationship between countries at any given time:

$$A_{ij}\ (t) = e^{k.C_{ij}(t)}$$

1) A_{ij} (t) is the strength of the interaction between countries *i* and *j*.
2) C_{ij} (t) represents the level of cooperation between countries *i* and *j* at time *t*.
3) K is a constant that adjusts the influence of cooperation on the interaction strength.

As cooperation increases between two nations, the interaction strength grows exponentially, further reinforcing the network's cooperation structure and reducing conflict potential.

(v). Combined Network System

The entire system is a coupled network where cooperation, resource distribution, and conflict escalation are interdependent. The dynamics of these interactions are captured by the following differential equations:

1) Cooperation Growth:

$$\frac{dC}{dt} = k.C(t).(1 - E\ (t)).f$$

2) Resource Allocation:

$$\frac{dR}{dt} = b.(1 - R\ (t))$$

3) Conflict Escalation:

$$E(t) = e^{-c.C(t)}$$

These equations collectively simulate how global cooperation evolves within the network, how resources are optimally allocated, and how conflicts are mitigated as a result of increased cooperation.

3.3. Implementation Steps

To implement this network analysis methodology:

3.3.1. Define Initial Conditions

Establish the starting values for cooperation (C0), resource distribution (R0), and the constants k, b, and c. Determine the external factors (f) and the initial strength of interactions (Aij(0)).

3.3.2. Simulate Time Evolution

Use numerical methods (such as the Euler method or Runge-Kutta methods) to solve the system of differential equations and track the evolution of cooperation, resource allocation, and conflict probabilities over time.

3.3.3. Identify Tipping Points

Monitor the system for tipping points, such as when cooperation *C(t)* drops below a critical threshold, or when conflict probability *E(t)* rises too quickly. Use these tipping points to determine when intervention is needed.

3.3.4. Policy Testing and Simulation

Test different policy interventions, such as increasing diplomatic efforts (adjusting k) or improving resource governance (adjusting b), and evaluate their impact on the stability of the system. Simulate the effects of international treaties, trade agreements, or diplomatic alliances on the global cooperation network.

3.3.5. Visualization

Generate plots of cooperation *C(t),* resource allocation *R(t),* and conflict escalation *E(t)* over time to visualize the network's dynamics and identify critical moments for intervention.

3.4. Extensions and Future Work

3.4.1. Stochastic Elements

Introduce randomness into the system to account for unpredictable global events such as natural disasters or political crises.

3.4.2. Multi-Agent Models

Extend the model to represent individual nations or regions as separate agents with distinct strategies for cooperation and conflict.

3.4.3. Feedback Loops

Include feedback mechanisms where cooperation influences external factors like economic stability or climate change, which in turn affect cooperation levels.

In Summary, the network analysis model applies Euler's number to simulate the evolution of global cooperation, the optimization of resource allocation, and the avoidance of conflicts. The dynamic system captures the interdependence of these factors and provides insights into how global peace and stability can be achieved through mathematical modeling of network interactions.

4. Advantages of Using Euler's Number for Global Cooperation

Euler's number offers several advantages in building global strategies for peace:

4.1. Predictive Power

E's properties in exponential growth and decay can predict how quickly peace initiatives or conflicts might escalate or de-escalate over time, providing a predictive model for international diplomacy.

4.2. Interconnectivity

Euler's number underpins many network models, which can be used to understand the interconnectedness of global issues such as climate change, trade, and international security. By using e, we can model how cooperation or conflict might spread through international networks.

4.3. Efficiency

Mathematical optimization using e can improve the efficiency of resource distribution and decision-making in global governance, helping prevent conflict over scarce resources.

5. Result & Discussion

The application of Euler's number to the dynamics of global cooperation and conflict resolution yielded several thought-provoking insights. By employing mathematical modeling and network theory, the research highlights how mathematical principles can inform strategies for peacebuilding. The results and their implications are discussed below:

5.1. Exponential Growth in Cooperation

The cooperation growth model demonstrated that small, positive interventions—such as effective diplomatic efforts or equitable resource-sharing initiatives—can exponentially enhance global cooperation. Using $C(t)=I{\cdot}e^{k.t.f}$, simulations revealed that when leadership is strong (*high k*) and external factors *f* are favorable, cooperation levels grow rapidly, creating a cascading effect throughout the network.

This phenomenon aligns with principles observed in network theory, where the strengthening of a few key relationships can significantly impact the overall system. For example, fostering alliances between influential nations can lead to ripple effects of collaboration across regional and global networks. Conversely, poor leadership or adverse conditions (negative *k*) can lead to exponential decay in cooperation, underscoring the critical importance of maintaining consistent, proactive efforts in peace building.

5.2. Resource Allocation Optimization

Efficient resource distribution, modeled using $R(t) = 1-e^{-b.t}$, showed how resource allocation stabilizes over time as governance mechanisms improve. The simulations revealed that higher values of *b* (representing governance efficiency) led to faster convergence to an equilibrium state where resources were optimally distributed.

For instance, applying this model to hypothetical scenarios of global food or energy allocation highlighted the potential for mitigating conflicts arising from resource scarcity. Nations that adopted cooperative strategies and optimized distribution policies saw a significant reduction in tension, as equitable resource-sharing fostered trust and reduced competition. This underscores the importance of improving global governance structures to address resource-based disputes.

5.3. Identifying Conflict Tipping Points

The conflict escalation model, $E(t) = e^{-c.C(t)}$, revealed critical tipping points in global cooperation. Simulations demonstrated that when cooperation levels ($C(t)$) fell below a threshold (C_{th}), conflict probability *(E(t))* escalated exponentially.

The identification of these tipping points offers a valuable tool for policymakers to anticipate and prevent conflict escalation. For example, if cooperation among nations drops below C_{th}, immediate interventions such as increased diplomatic efforts or economic incentives could help restore stability. Moreover, the combined model's differential equations suggested that early action to improve cooperation or enhance resource distribution can effectively counteract the onset of conflict.

5.4. Interdependence in Network Dynamics

The network analysis model highlighted the interconnected nature of global relationships. Using dynamic adjacency matrices, $A_{ij}(t)=e^{k.Cij(t),}$ the strength of interactions between nations was shown to grow exponentially with increased cooperation. This finding supports the idea that fostering bilateral or multilateral cooperation between key players in international networks can amplify positive effects throughout the system.

For instance, scenarios where influential nations formed alliances demonstrated rapid improvements in global cooperation levels, while isolated or adversarial relationships created vulnerabilities that disrupted the network's stability. This underscores the importance of targeted diplomacy and relationship-building in peace strategies.

5.5. Practical Implications and Challenges

While the results are promising, practical challenges remain. Translating abstract mathematical models into actionable policies requires careful consideration of real-world complexities, including political, cultural, and economic factors. The assumption of homogeneity among nations in the models is a simplification, as individual countries often have vastly different capacities, priorities, and constraints.

Furthermore, the model assumes that external factors *(f)* are relatively stable or predictable, which may not always be the case in a volatile geopolitical landscape. Future iterations of the model could incorporate stochastic elements to account for unexpected events such as natural disasters, political upheavals, or technological disruptions.

5.6. Insights and Contributions

This study contributes to the growing body of research at the intersection of mathematics and peacebuilding by demonstrating the applicability of Euler's number in modeling global cooperation and conflict resolution. Key insights include:

5.6.1. Predictive Power

The exponential functions governed by ***e*** offer predictive tools for understanding how cooperation, resource allocation, and conflict probabilities evolve over time.

5.6.2. Policy Design

By identifying tipping points and optimal intervention strategies, the models provide a framework for designing targeted and effective policies.

5.6.3. Interconnected Systems

The use of network dynamics highlights the importance of fostering interconnected relationships to achieve sustainable peace.

5.7. Limitations and Future Directions

While the models are theoretically robust, their practical application requires further refinement. Future work should focus on:

5.7.1. Empirical Validation

Applying the models to real-world case studies to validate their accuracy and relevance.

5.7.2. Stochastic Modeling

Introducing randomness to account for unpredictable geopolitical and environmental events.

5.7.3. Multi-Agent Simulations

Expanding the network model to include diverse agents with unique strategies and priorities.

5.7.4. Integration of Feedback Loops

Incorporating dynamic feedback mechanisms where changes in cooperation influence external factors, and vice versa.

6. Conclusions

This paper has introduced a novel perspective on leveraging Euler's number as a mathematical foundation for fostering global cooperation and resolving conflicts. By integrating the principles of exponential growth and decay into models of cooperation, resource allocation, and conflict escalation, we demonstrate how mathematical tools can offer unique insights into complex global dynamics. The proposed framework highlights the potential of "mathematical peace"—a synthesis of mathematical modeling and humanitarian political leadership—to address the multifaceted challenges of achieving sustainable global harmony.

Euler's number, with its fundamental properties in network theory and systems optimization, provides a powerful lens through which to analyze and predict the dynamics of international relations. The models presented here suggest that strategic interventions informed by mathematical principles can optimize resource distribution, predict tipping points for conflict escalation, and foster exponential growth in cooperation. Moreover, the integration of network theory underscores the interconnected nature of global issues, offering actionable strategies for diplomacy and governance.

While this study lays a theoretical foundation, it also opens avenues for future research. Practical applications of these models, validation through historical data, and extensions to multi-agent systems remain critical areas for exploration. Additionally, incorporating stochastic elements and feedback mechanisms can enhance the model's robustness in the face of unpredictable global events. The "Mathematical Peace" model can serve as an effective tool for analyzing the positive and negative roles, cooperation, activities, and humanitarian efforts of various countries in establishing international peace. This model uses mathematical and statistical methods to assess countries' contributions to peacekeeping missions, humanitarian aid, and levels of international cooperation while identifying causes of conflict, terrorism, or human rights violations. By evaluating both positive actions, such as participation in peace missions, and negative aspects, like war involvement or human rights abuses, this model can provide strategic insights and contribute significantly to the promotion of global peace.

Ultimately, this research underscores the profound relationship between mathematics and peace. By bridging abstract mathematical principles with real-world applications, we aim to inspire innovative approaches to peacebuilding that transcend traditional strategies. As global challenges become increasingly complex, interdisciplinary efforts—anchored in mathematics—will be essential in shaping a more cooperative and harmonious world.

Abbreviations

e	Euler's Number
C(t)	Level of Global Cooperation at Time t
R(t)	Resource Allocation Efficiency at Time t
E(t)	Conflict Escalation Probability at Time t
I	Initial Level of Cooperation
K	Rate of Growth or Decay in Cooperation
f	External Factors Influencing the System
a, b, c	Scaling Constants for Normalization of Variables
Cth	Cooperation Threshold
Req	Resource Distribution Equilibrium
Aij(t)	Interaction Strength Between Countries i and j at Time t
k	Rate of Cooperation Growth or Decay
b	Scaling Constant for Resource Distribution Optimization
c	Sensitivity Constant in Conflict Escalation Model
Tth	Tipping Threshold (for Cooperation and Conflict Models)
f	External Factors Influencing Global Cooperation and Conflict Dynamics

Author Contributions

Md. Ziaur Rahman is the sole author. The author read and approved the final manuscript.

Conflicts of Interest

The author declares no conflicts of interest.

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Biography

Md. Ziaur Rahman holds an M.Sc in Mathematics and a Master's in Computer Science and Engineering. He is an accomplished author of books such as Health TV and Bangladesh, Poor Bank, and SMS Medicine. Recently, he invented a new mathematical constant, Zia's number ($2\sqrt{2}$ or 2.83), which promises significant contributions to mathematics, physics, engineering, and technology. Many of his renowned researches have already been published, including "The Role of humanitarian political leadership in shaping Social and Economical Policies for Poverty Alleviation", "Advanced Technologies for Remote Access To Home Internet: A Review Of Potential Solutions And Their Implementation", etc.