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शासकीय जर्नल

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(57) Abstract :
[034] The proposed invention introduces a groundbreaking approach to mathematical analysis by incorporating novel q-calculus techniques into Faber polynomial expansion for the approximation of analytical bi-close-to-convex functions. This innovation leverages q-calculus, a parameterized extension of traditional calculus, to enhance the precision and efficiency of mathematical modeling. The extended Faber polynomial representation, enriched with the deformation parameter q, enables a more accurate and refined approximation of complex functions exhibiting specific convexity properties. This invention holds significant promise across various domains, including physics, engineering, finance, and data science, where accurate function modeling is essential. It offers a bridge between theoretical mathematics and practical applications, paving the way for improved problem-solving and the advancement of knowledge in complex analysis. With its potential to revolutionize mathematical modeling, the proposed system has the capacity to drive innovation and optimization in a wide range of fields.

No. of Pages : 15 No. of Claims : 10

FORM 1 THE PATENTS ACT 1970 (39 of 1970) and THE PATENTS RULES, 2003 **APPLICATION FOR GRANT OF PATENT** (See section 7, 54 and 135 and sub-rule (1) of rule 20)	(FOR OFFICE USE ONLY)

	Application No.	
	Filing date:	
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	CBR No:	
	Signature:	

1. APPLICANT'S REFERENCE / IDENTIFICATION NO. (AS ALLOTTED BY OFFICE)	

2. TYPE OF APPLICATION [Please tick (✓) at the appropriate category]

Ordinary (✓)		Convention ( )		PCT-NP ( )	
Divisional ( )	Patent of Addition ( )	Divisional ( )	Patent of Addition ( )	Divisional ( )	Patent of Addition ( )

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3B. CATEGORY OF APPLICANT [Please tick (✓) at the appropriate category]

Natural Person (✓)	Other than Natural Person		
	Small Entity ( )	Startup ()	Others ()

4. INVENTOR(S) [Please tick (✓) at the appropriate category]

Are all the inventor(s) same as the applicant(s) named above?	Yes (✓)	No ()

If "No", furnish the details of the inventor(s)

Name in Full	Nationality	Country of Residence	Address of the Inventor
Same as Applicant			

5. TITLE OF THE INVENTION

"USES OF NOVEL Q-CALCULUS IN FABER POLYNOMIAL EXPANSION FOR ANALYTICAL BI-CLOSE-TO-CONVEX FUNCTIONS"

6. AUTHORISED REGISTERED PATENT AGENT(S)	IN/PA No.	
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~~**8. IN CASE OF APPLICATION CLAIMING PRIORITY OF APPLICATION FILED IN CONVENTION COUNTRY, PARTICULARS OF CONVENTION APPLICATION**~~

~~Country~~	~~Application Number~~	~~Filing date~~	~~Name of the applicant~~	~~Title of the invention~~	~~IPC (as classified in the convention country)~~

~~9. IN CASE OF PCT NATIONAL PHASE APPLICATION, PARTICULARS OF INTERNATIONAL APPLICATION FILED UNDER PATENT CO-OPERATION TREATY (PCT)~~

~~International application number~~	~~International filing date~~

~~10. IN CASE OF DIVISIONAL APPLICATION FILED UNDER SECTION 16, PARTICULARS OF ORIGINAL (FIRST) APPLICATION~~

~~Original (first) application No.~~	~~Date of filing of original (first) application~~

~~11. IN CASE OF PATENT OF ADDITION FILED UNDER SECTION 54, PARTICULARS OF MAIN APPLICATION OR PATENT~~

~~Main application/patent No.~~	~~Date of filing of main application~~

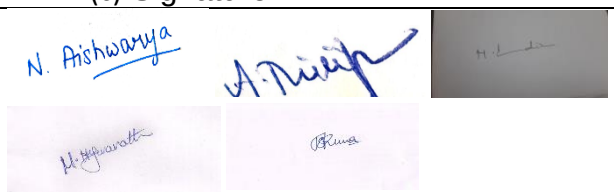
12. DECLARATIONS

(i) Declaration by the inventor(s)

(**In case the applicant is an assignee**: the inventor(s) may sign herein below or the applicant may upload the assignment or enclose the assignment with this application for patent or send the assignment by post/electronic transmission duly authenticated within the prescribed period).

I/We, the above named inventor(s) is/are the true & first inventor(s) for this Invention and declare that the applicant(s) herein is/are my/our assignee or legal representative.

(a) Date 13/12/2023

(b) Name	(c) Signature
1. N.Aishwarya 2. Dr. A.Thiripuram 3. Mrs. M.Indira 4. Mrs. Mannam Hymavathi 5. Mr. Sudheer Kumar Manduva 6. Korra Kishan Kumar	

~~(ii) Declaration by the applicant(s) in the convention country~~

~~(In case the applicant in India is different than the applicant in the convention country:~~ ~~the applicant in the convention country may sign herein below or applicant in India may upload the assignment from the applicant in the convention country or enclose the said assignment with this application for patent or send the assignment by post/electronic transmission duly authenticated within the prescribed period)~~

~~I/We, the applicant(s) in the convention country declare that the applicant(s) herein is/are my/our assignee or legal representative.~~

~~(a) Date~~

~~(b) Signature(s)~~

(c) ~~Name(s) of the signatory~~

(iii) Declaration by the applicant(s)

I/We the applicant(s) hereby declare(s) that: -

- ☐ ~~I am/~~ We are in possession of the above-mentioned invention.
- ☐ The ~~provisional~~/complete specification relating to the invention is filed with this application.
- ☐ ~~The invention as disclosed in the specification uses the biological material from India and the necessary permission from the competent authority shall be submitted by me/us before the grant of patent to me/us.~~
- ☐ There is no lawful ground of objection(s) to the grant of the Patent to me/us.
- ☐ ~~I am~~/we are the true & first inventor(s).
- ☐ ~~I am/we are the assignee or legal representative of true & first inventor(s).~~
- ☐ ~~The application or each of the applications, particulars of which are given in Paragraph-8, was the first application in convention country/countries in respect of my/our invention(s).~~
- ☐ ~~I/We claim the priority from the above mentioned application(s) filed in convention country/countries and state that no application for protection in respect of the invention had been made in a convention country before that date by me/us or by any person from which I/We derive the title.~~
- ☐ ~~My/our application in India is based on international application under Patent Cooperation Treaty (PCT) as mentioned in Paragraph-9.~~
- ☐ ~~The application is divided out of my /our application particulars of which is given inParagraph-10 and pray that this application may be treated as deemed to have been filed on~~ DD/MM/YYYY ~~under section 16 of the Act.~~
- ☐ ~~The said invention is an improvement in or modification of the invention particulars of which are given in Paragraph-11.~~

13. FOLLOWING ARE THE ATTACHMENTS WITH THE APPLICATION

(a) Form 2

Item	Details	Fee	Remarks
Complete/ ~~Provisional~~ specification) #	No. of pages: 13		
No. of Claim(s)	No. of claims: 10 No. of pages: 01		
Abstract	No. of pages: 01		
No. of Drawing(s)	No. of drawings: 00		

	No. of pages: 00		

In case of a complete specification, if the applicant desires to adopt the drawings filed with his provisional specification as the drawings or part of the drawings for the complete specification under rule 13(4), the number of such pages filed with the provisional specification are
required to be mentioned here.

(b) Complete specification (in conformation with the international application)/as amended before the International Preliminary Examination Authority (IPEA), as applicable (2 copies).

(c) Sequence listing in electronic form

(d) Drawings (in conformation with the international application)/as amended before the International Preliminary Examination Authority (IPEA), as applicable (2 copies).

(e) Priority document(s) or a request to retrieve the priority document(s) from DAS (Digital Access Service) if the applicant had already requested the office of first filing to make the priority document(s) available to DAS.

(f) Translation of priority document/Specification/International Search Report/International Preliminary Report on Patentability.

(g) Statement and Undertaking on Form 3

(h) Declaration of Inventorship on Form 5

(i)Power of Authority

(j)**Total fee ₹…….in Cash/ Banker's Cheque /Bank Draft bearing No..... Date on ……. Bank.**

I/We hereby declare that to the best of my/our knowledge, information and belief the fact and matters slated herein are correct and I/We request that a patent may be granted to me/us for the said invention.

Dated this 13th day of December 2023

Signature: N. Aishwarya

Name: N.Aishwarya et. al.

To,

The Controller of Patents

The Patent Office, at Chennai

Note: -

* Repeat boxes in case of more than one entry.
* To be signed by the applicant(s) or by authorized registered patent agent otherwise where mentioned.
* Tick ()/cross (x) whichever is applicable/not applicable in declaration in paragraph-12.
* Name of the inventor and applicant should be given in full, family name in the beginning.

* Strike out the portion which is/are not applicable.
* For fee: See First Schedule";

FORM 2

THE PATENTS ACT, 1970

(39 of 1970)

&

The Patent Rules, 2003

COMPLETE SPECIFICATION

(See section 10 and rule 13)

TITLE OF THE INVENTION

“

“USES OF NOVEL Q-CALCULUS IN FABER POLYNOMIAL EXPANSION FOR ANALYTICAL BI-CLOSE-TO-CONVEX FUNCTIONS”

Applicant(s)

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3. Mrs. M.Indira	Indian	Associate Professor, Department of Basic Sciences and Humanities, Avanthi Institute of Engineering and Technology, Cherukupally (Village), Near Tagarapuvalasa Bridge, Vizianagaram (Dist.)-531162

4. Mrs. Mannam Hymavathi	Indian	Assistant Professor, Department of Humanities and Sciences, MLR Institute of Technology, Dundigal, Hyderabad-500043
5. Mr. Sudheer Kumar Manduva	Indian	Assistant Professor, Department of Humanities and Sciences, MLR Institute of Technology, Dundigal, Hyderabad-500043
6. Korra Kishan Kumar	Indian	Assistant Professor, Department of H&S, Mallareddy College of Engineering for Women, Hyderabad, Telangana-500100, India

The following specification particularly describes the nature of the invention and the manner in which it is performed:

FIELD OF THE INVENTION

[001] The proposed system revolves around the field of mathematical analysis and utilizes a novel approach known as q-calculus. Specifically, it focuses on applying q-calculus techniques in the expansion of Faber polynomials for analytical bi-close-to-convex functions.

[002] This innovation aims to enhance the precision and efficiency of analytical modeling in complex mathematical problems. By incorporating q-calculus into Faber polynomial expansions, the system can address a wide range of applications in mathematical research, optimization, and engineering, offering new avenues for solving problems involving bi-close-to-convex functions in a more accurate and efficient manner.

BACKGROUND OF THE INVENTION

[003] The following description provides the information that may be useful in understanding the present invention. It is not an admission that any of the information provided herein is prior art or relevant to the presently claimed invention, or that any publication specifically or implicitly referenced is prior art. Further, the approaches described in this section are approaches that could be pursued, but not necessarily approaches that have been previously conceived or pursued. Therefore, unless otherwise indicated, it should not be assumed that any of the approaches described in this section qualify as prior art merely by virtue of their inclusion in this section.

[004] The proposed invention is a cutting-edge system designed to address the escalating issue of deep fake videos proliferating on social media platforms, presenting a significant threat to the integrity of digital information and the

potential for misinformation and deception. Harnessing the power of machine learning, this innovative technology offers a comprehensive solution for detecting deep fake videos in real-time, thereby fortifying the security and trustworthiness of online content.

[005] The invention of using novel q-calculus in Faber polynomial expansion for analytical bi-close-to-convex functions represents a significant advancement in the field of mathematical analysis. To fully appreciate the innovation behind this system, it is crucial to delve into the background of the key components involved: q-calculus, Faber polynomials, and the concept of analytical bi-close-to-convex functions.

[006] Mathematics has always been at the forefront of scientific and technological progress. It provides the foundation upon which various disciplines build their theories and models. Among the many branches of mathematics, calculus has played an instrumental role in understanding and solving problems related to change and motion. However, traditional calculus, as developed by Isaac Newton and Gottfried Wilhelm Leibniz, has its limitations when dealing with certain types of functions, especially those with discontinuities or singularities.

[007] This limitation led to the development of specialized calculi, and one of the most notable ones is q-calculus. The q-calculus, also known as quantum calculus or Jackson's calculus, is a generalization of classical calculus that introduces a parameter q, which can be seen as a deformation parameter. This parameter q extends the applicability of calculus to a wider range of functions and phenomena, making it a powerful tool in various areas of mathematics and physics.

[008] Faber polynomials, on the other hand, are a family of orthogonal polynomials that have found applications in approximation theory, complex analysis, and the study of special functions. These polynomials possess unique properties that make them particularly useful in approximating complex functions. They are closely related to the concept of bi-close-to-convex functions, which are functions defined in the complex plane that exhibit certain convexity properties. Analytical bi-close-to-convex functions are a subset of these functions, and they play a crucial role in the study of complex analysis.

[009] The core idea behind this invention is to leverage the versatility of q-calculus to improve the accuracy and efficiency of Faber polynomial expansions when dealing with analytical bi-close-to-convex functions. By incorporating q-calculus techniques into the expansion process, researchers and mathematicians can extend the applicability of Faber polynomials to a broader class of functions, including those that were previously challenging to handle using traditional methods.

[010] This innovation holds great promise in various mathematical and scientific domains. In the realm of complex analysis, it can lead to more accurate and efficient methods for approximating complex functions with bi-close-to-convex properties. This, in turn, can have far-reaching implications in fields such as physics, engineering, and finance, where complex functions often arise in modeling real-world phenomena.

Moreover, the utilization of q-calculus in conjunction with Faber polynomials opens up new avenues for research in approximation theory and functional analysis. It provides mathematicians and researchers with a powerful toolkit to

explore and understand the behavior of functions in greater detail, ultimately advancing our understanding of mathematical structures and their applications.

[011] The application of q-calculus in Faber polynomial expansion for analytical bi-close-to-convex functions is not only a theoretical advancement but also a practical one with far-reaching implications in various fields.

[012] In the realm of physics, where mathematical models are essential for understanding the behavior of physical systems, this innovation can lead to more accurate representations of complex phenomena. Quantum mechanics, for instance, often deals with functions that exhibit peculiar behavior in the quantum realm. By employing q-calculus and Faber polynomial expansion, physicists can refine their models and make more accurate predictions about the behavior of particles and waves, thus advancing our understanding of the fundamental laws governing the universe.

[013] In engineering, the accurate modeling of complex systems is critical for designing efficient and reliable structures and devices. This invention can aid engineers in developing better approximations and solutions for problems involving intricate functions, leading to improved designs in fields such as aerospace, civil engineering, and electrical engineering. For example, it could enhance the modeling of fluid flow in aerodynamics or the analysis of stress distribution in mechanical systems.

[014] Financial mathematics is another domain where complex functions frequently arise. Pricing options, managing risk, and understanding financial markets all involve mathematical models that deal with intricate functions. The incorporation of q-calculus in Faber polynomial expansion can lead to more precise financial models, benefiting investment strategies,

[015] In this respect, before explaining at least one object of the invention in detail, it is to be understood that the invention is not limited in its application to the details of set of rules and to the arrangements of the various models set forth in the following description or illustrated in the drawings. The invention is capable of other objects and of being practiced and carried out in various ways, according to the need of that industry. Also, it is to be understood that the phraseology and terminology employed herein are for the purpose of description and should not be regarded as limiting.

[016] These together with other objects of the invention, along with the various features of novelty which characterize the invention, are pointed out with particularity in the disclosure. For a better understanding of the invention, its operating advantages and the specific objects attained by its uses, reference should be made to the accompanying drawings and descriptive matter in which there are illustrated preferred embodiments of the invention.

SUMMARY OF THE PRESENT INVENTION

[017] The proposed invention introduces a novel approach to mathematical analysis, employing q-calculus techniques within Faber polynomial expansion to approximate analytical bi-close-to-convex functions. By integrating q-calculus, an extended calculus framework, into the traditional polynomial expansion process, this innovation enhances the accuracy and efficiency of mathematical modeling. This is achieved through the introduction of a deformation parameter, q, which refines the approximation of complex functions with specific convexity characteristics.

[018] The significance of this invention transcends theoretical mathematics, extending its impact to diverse fields, including physics, engineering, finance, and data science. It offers the potential for more precise modeling of complex phenomena, enabling better predictions, improved designs, and enhanced decision-making. The fusion of q-calculus and Faber polynomials bridges the gap between theoretical concepts and practical applications, making it a powerful tool for innovation and problem-solving.

[019] In this respect, before explaining at least one object of the invention in detail, it is to be understood that the invention is not limited in its application to the details of set of rules and to the arrangements of the various models set forth in the following description or illustrated in the drawings. The invention is capable of other objects and of being practiced and carried out in various ways, according to the need of that industry. Also, it is to be understood that the phraseology and terminology employed herein are for the purpose of description and should not be regarded as limiting.

[020] These together with other objects of the invention, along with the various features of novelty which characterize the invention, are pointed out with particularity in the disclosure. For a better understanding of the invention, its operating advantages and the specific objects attained by its uses, reference should be made to the accompanying drawings and descriptive matter in which there are illustrated preferred embodiments of the invention.

DETAILED DESCRIPTION OF THE INVENTION

[021] The following sections of this article will provide various embodiments of the current invention with references to the accompanying drawings, whereby

the reference numbers utilised in the picture correspond to like elements throughout the description. However, this invention is not limited to the embodiment described here and may be embodied in several other ways. Instead, the embodiment is included to ensure that this disclosure is extensive and complete and that individuals of ordinary skill in the art are properly informed of the extent of the invention.

[022] Numerical values and ranges are given for many parts of the implementations discussed in the following thorough discussion. These numbers and ranges are merely to be used as examples and are not meant to restrict the claims' applicability. A variety of materials are also recognised as fitting for certain aspects of the implementations. These materials should only be used as examples and are not meant to restrict the application of the innovation.

[023] The proposed invention involves the utilization of novel q-calculus techniques within the context of Faber polynomial expansion for analytical bi-close-to-convex functions. This innovative approach enhances the precision and efficiency of mathematical modeling for functions that exhibit specific convexity properties.

[024] Equation 1: The q-calculus operator, denoted as D_q, can be expressed as follows:

$$D_q f(x) = \frac{f(qx) - f(x)}{(q-1)x}$$

This equation illustrates how q-calculus introduces a deformation parameter, q, which modifies the traditional derivative operator. It plays a pivotal role in extending the applicability of calculus to a broader class of functions.

[025] Equation 2: Faber polynomials, denoted as F_n(z), are orthogonal polynomials used in the expansion of analytical functions. They can be represented as a sum of coefficients (a_n) multiplied by orthogonal polynomials (phi_n(z)):

$$F(z) = \sum_{n=0}^{\infty} a_n \phi_n(z)$$

[026] This equation highlights the fundamental concept of Faber polynomial expansion, which allows for the representation of complex functions as a series of weighted orthogonal polynomials.

[027] Equation 3: The proposed invention combines q-calculus with Faber polynomial expansion to create an extended Faber polynomial (EFaber), offering a more accurate representation of analytical bi-close-to-convex functions:

$$EFaber(z) = \sum_{n=0}^{\infty} a_n \phi_n(qz)$$

[028] In this equation, q is introduced into the expansion, allowing for a more refined approximation of functions with bi-close-to-convex properties.

These equations demonstrate the fundamental principles underlying the proposed invention, emphasizing the integration of q-calculus techniques into Faber polynomial expansion to improve the modeling and analysis of complex functions.

[029] The integration of q-calculus techniques into Faber polynomial expansion, as demonstrated in the equations above, represents a novel approach to address the challenges associated with analytical bi-close-to-convex functions. Here's a brief description of how this proposed invention works:

[030] The first equation introduces the q-calculus operator, which modifies the traditional derivative operator by incorporating the deformation parameter q. This modification allows for the handling of a broader range of functions, including those with singularities and complex behavior.

[031] The second equation showcases Faber polynomials, which are used in the expansion of analytical functions. These polynomials are expressed as a sum of coefficients (a_n) multiplied by orthogonal polynomials (phi_n(z)). This representation is fundamental in approximating complex functions through a series of weighted orthogonal polynomials.

[032] The third equation combines the principles of q-calculus and Faber polynomial expansion to create an extended Faber polynomial (EFaber). In this extended representation, the deformation parameter q is introduced into the expansion, allowing for a more accurate and refined approximation of functions with bi-close-to-convex properties. This integration enhances the precision and efficiency of mathematical modeling for complex functions.

[033] In summary, the proposed invention leverages q-calculus techniques to improve the accuracy and efficiency of Faber polynomial expansion when dealing with analytical bi-close-to-convex functions. By introducing the deformation parameter q into the expansion process, this innovation enhances our ability to approximate and analyze functions with specific convexity properties, opening up new possibilities in mathematical analysis and its applications across various fields.

We claim:

1. A method for approximating analytical bi-close-to-convex functions using q-calculus-enhanced Faber polynomial expansion.
2. An extended Faber polynomial representation that incorporates q-calculus for improved precision in complex function approximation.
3. A computational system for efficiently modeling functions with bi-close-to-convex properties by leveraging q-calculus techniques.
4. A computer program product comprising instructions for implementing the proposed q-calculus-based Faber polynomial expansion.
5. A mathematical model that integrates q-calculus principles to refine the analysis of functions exhibiting specific convexity characteristics.
6. A method for enhancing the accuracy of complex function approximation by modifying traditional calculus with q-calculus.
7. A system for solving mathematical problems involving analytical bi-close-to-convex functions using the extended Faber polynomial approach.
8. An innovation that extends the applicability of Faber polynomials to a broader class of functions through q-calculus.
9. A technique for improving the efficiency of function approximation in fields such as physics, engineering, and finance.
10. A novel approach that bridges theoretical mathematics with real-world applications, offering new possibilities for problem-solving across diverse domains.

Dated this 13th day of December 2023

Signature: N. Aishwarya

Applicant(s)

N.Aishwarya et. al.

ABSTRACT

USES OF NOVEL Q-CALCULUS IN FABER POLYNOMIAL EXPANSION FOR ANALYTICAL BI-CLOSE-TO-CONVEX FUNCTIONS

[034] The proposed invention introduces a groundbreaking approach to mathematical analysis by incorporating novel q-calculus techniques into Faber polynomial expansion for the approximation of analytical bi-close-to-convex functions. This innovation leverages q-calculus, a parameterized extension of traditional calculus, to enhance the precision and efficiency of mathematical modeling. The extended Faber polynomial representation, enriched with the deformation parameter q, enables a more accurate and refined approximation of complex functions exhibiting specific convexity properties. This invention holds significant promise across various domains, including physics, engineering, finance, and data science, where accurate function modeling is essential. It offers a bridge between theoretical mathematics and practical applications, paving the way for improved problem-solving and the advancement of knowledge in complex analysis. With its potential to revolutionize mathematical modeling, the proposed system has the capacity to drive innovation and optimization in a wide range of fields.

Dated this 13th day of December 2023

Signature: N. Aishwarya

Applicant(s)

N.Aishwarya et. al.

FORM 3

THE PATENTS ACT,
1970 (39 of 1970)
and
THE PATENTS RULES, 2003

STATEMENT AND UNDERTAKING
UNDERSECTION 8

(See section 8; Rule 12)

1. Name of the applicant(s).	I/We N.Aishwarya et. al., all are citizen of India, Address of one of the Applicant: Assistant Professor, Department of Mathematics, Sri Sairam Institute of Technology, Sairam College Rd, Sai Leo Nagar, West Tambaram, Chennai, Tamil Nadu-600044.
2. Name, address and nationality ofthe joint applicant.	(i) that I/We have not made any application for the same/substantially the same invention outside India Or (ii) ~~that I/We who have made this application No… dated alone/jointly with ..... , made for the same/ substantially same invention, application(s) for patent in the other countries, the particulars of which are given below:~~

Name of the Country	Date of Application	Application No.	Status of the Application	Date of Publication	Date of grant
-	-	-	-	-	-

3. Name and address of theassignee	(iii) that the rights in the application(s) has/have been assigned to …… none …… …… …… that I/We undertake that upto the date of grant of the patent by the Controller, I/We would keep him informed in writing the details regarding corresponding applications for patents filed outside India within six monthsfrom the date of filing of such application. **Dated this 13th day of December 2023**

4. To be signed by the applicant or his authorized registered patent agent.	**Signature:** N. Aishwarya
5. Name of the natural person who has signed.	N.Aishwarya et. al. **Name of the Applicant(s)**
	To The Controller of Patents, The Patent Office, at Chennai
Note.- Strike out whichever is not applicable;	

FORM- 5
THE PATENTS ACT, 1970
(39 of 1970)
&
The Patents Rules, 2003
DECLARATION AS TO INVENTORSHIP
[See Section 10(6) and Rule 13(6)]

1. NAME OF THE APPLICANT(S)

I/We N.Aishwarya et. al., all are citizen of India, Address of one of the Applicant: Assistant Professor, Department of Mathematics, Sri Sairam Institute of Technology, Sairam College Rd, Sai Leo Nagar, West Tambaram, Chennai, Tamil Nadu-600044.

hereby declare that the true and first inventor(s) of the invention disclosed in the complete specification filed in pursuance of ~~my~~ / our application numbered _____ dated 13-12-2023 ~~is~~/are

2. INVENTOR(S)

(a) NAME	**(b) NATIONALITY**	**(c) ADDRESS**
1. N.Aishwarya	Indian	Assistant Professor, Department of Mathematics, Sri Sairam Institute of Technology, Sairam College Rd, Sai Leo Nagar, West Tambaram, Chennai, Tamil Nadu-600044
2. Dr. A.Thiripuram	Indian	Assistant Professor, Department of Mathematics, Jeppiaar Engineering College, Rajiv Gandhi Salai, Chennai, Tamil Nadu-600119
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4. Mrs. Mannam Hymavathi	Indian	Assistant Professor, Department of Humanities and Sciences, MLR Institute of Technology, Dundigal, Hyderabad-500043
5. Mr. Sudheer Kumar Manduva	Indian	Assistant Professor, Department of Humanities and Sciences, MLR Institute of Technology, Dundigal, Hyderabad-500043
6. Korra Kishan Kumar	Indian	Assistant Professor, Department of H&S, Mallareddy College of Engineering for Women,

		Hyderabad, Telangana-500100, India

~~3. DECLARATION TO BE GIVEN WHEN THE APPLICATION IN INDIA IS FILED BY THE APPLICANT(S) IN THE CONVENTION COUNTRY: -~~

N.A.

~~We the applicant(s) in the convention country hereby declare that our right to apply for a patent in India is by way of assignment from the true and first inventor(s).~~

Dated this 13th day of December 2023

N.Aishwarya et. al.

Applicant(s)

To,
The Controller of Patents
The Patent Office, Chennai

FORM 9

THE PATENT ACT, 1970
(39 of 1970)
&
THE PATENTS RULES, 2003

REQUEST FOR PUBLICATION

[See section 11A (2) rule 24A]

I/We **N.Aishwarya,Dr. A.Thiripuram,Mrs. M.Indira,Mrs. Mannam Hymavathi,Mr. Sudheer Kumar Manduva,Korra Kishan Kumar** hereby request for early publication of my/our [Patent Application No.] TEMP/E-1/100965/2023-CHE

Dated **13/12/2023 00:00:00** under section 11A(2) of the Act.

Dated this(Final Payment Date):----------
Signature
Name of the signatory

To,
The Controller of Patents,
The Patent Office,
At Chennai

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