MATHOMANIA

Newsletter from the Department of Mathematics

ISSUE-1 | 2020-21

THEME

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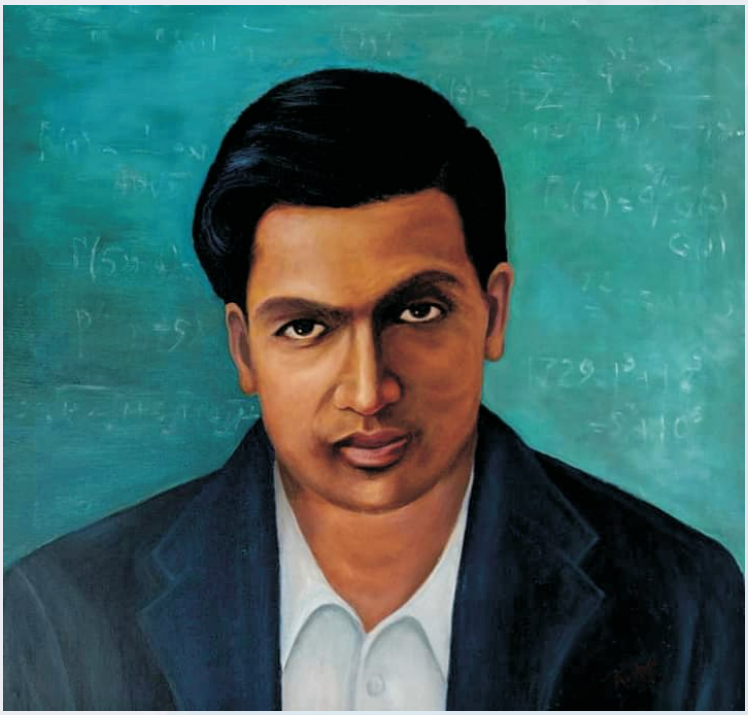
SRINIVASA RAMANUJAN



Srinivasa Ramanujan is considered to be one of the geniuses in the field of mathematics. He was born on 22nd December 1887, in a small village of Tamil Nadu during British rule in India. His birthday is celebrated as national mathematics day. In high school, he used to do very well in all subjects. In 1990, he started working on his mathematics in geometry and arithmetic series. Although he had no official training in mathematics, even then, he was able to solve problems that were considered unsolvable. He published his first paper in 1911. In January 1913, Ramanujan began a postal conversation with an English mathematician, G.H. Hardy at the University of Cambridge, England and wrote a letter after having seen a copy of his book Orders of infinity. He found Ramanujan's work to be extraordinary and arranged for him to travel to Cambridge in 1914. As Ramanujan was an orthodox Brahmin, a vegetarian, his religion might have restricted him to travel.

This difficulty of Ramanujan was solved partly by E H Neville, a colleague of Hardy. Hardy after analysing the works of Ramanujan, said,

"Ramanujan had produced groundbreaking new theorems, including some that defeated me completely.I had never seen anything in the least like them before."

At the age of 32, he died of Tuberculosis. In his short life span, he independently found 3900 results. He worked on real analysis, number theory, infinite series, and continued fractions. Some of his other works such as Ramanujan number, Ramanujan prime, Ramanujan theta function, partition formulae, mock theta function, and many more opened new areas for research in the field of mathematics. He worked out the Riemann series, the elliptic integrals, hypergeometric series, the functional equations of the zeta function, and his theory of divergent series, in which he found a value for the sum of such series, using a technique he invented, that came to be called Ramanujan summation. In England, Ramanujan made further researches, especially in the partition of numbers, i.e, the number of ways in which a positive integer can be expressed as the sum of positive integers. Some of his results are still under research. His journal, Ramanujan Journal, was and results, both published and unpublished, in the field of mathematics. As late as 2012, researchers studied even the small comments in his book, as they do not want to miss any results or identities given by him, that remained unsuspected until a century after his death.

From his last letters in 1920 that he wrote to Hardy, it was evident that he was still working on new ideas and theorems of mathematics. In 1976, mathematicians found the 'lost notebook', that contained the works of Ramanujan from the last year of his life. Ramanujan devoted all his mathematical intelligence to his family goddess Namagir Thayar. He once said, "An equation for me has no meaning unless it expresses a thought of God."

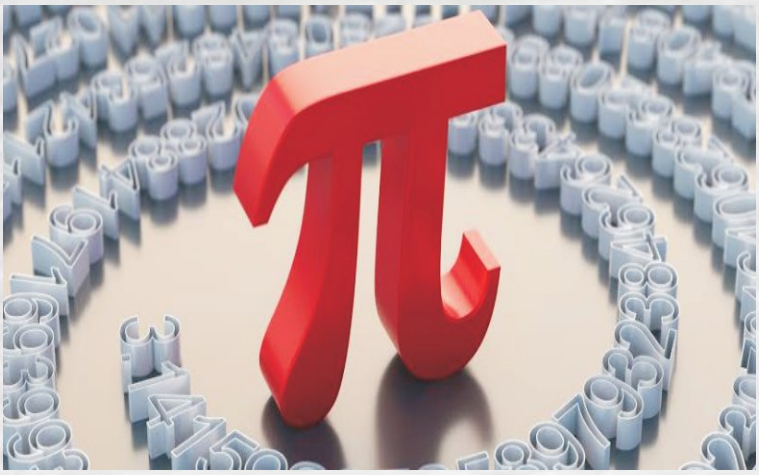
CONSTANT OF THE ISSUE

The symbol for Pi has been in use for over 250 years. The symbol was introduced by William Jones, a Welsh mathematician, in 1706. The symbol was made popular by the mathematician Leonhard Euler.

The record for reciting the most number of decimal places of Pi was achieved by Rajveer Meena at VIT University, Vellore, India on 21 March 2015. He was able to recite 70,000 decimal places. To maintain the sanctity of the record, Rajveer wore a blindfold throughout the duration of his recall, which took an astonishing 10 hours!

March 14 or 3/14 is celebrated as pi day because 3.14 are the first digits of pi. Math nerds around the world love celebrating this infinitely long, never-ending number.

Since the exact value of pi can never be calculated, we can never find the accurate area or circumference of a circle.



William Shanks, a British mathematician, worked manually to find the digits of pi in 1873. He spent many years trying to calculate the pi digits by hand and found the first 707 digits. Unfortunately, the 527th digit he found was wrong, which made all the following digits wrong as well.

The number pi is literally infinitely long. But the number 123456 doesn't appear anywhere in the first million digits of pi. It is a bit shocking because if a million digits of pi don't have the sequence 124356, it definitely is the most unique number.

Many mathematicians believe that it is more accurate to say that a circle has infinite corners than it is to say that it has none. It is only reasonable to assume that the infinite number of corners in a circle correlates to the infinite number of digits of pi.

In ancient times, mathematicians used a unique method to calculate pi. They would add more and more sides to a polygon so that its area approached the area of a circle. Archimedes, the most famous Greek mathematician and inventor, used a polygon with 96 sides. Many other mathematicians also used this polygon-method to compute the infinitely long number pi. In China, a mathematician used over 3,000 sides in a polygon to arrive at the value 3.14159. Another mathematician used about 25,000 sides to calculate pi.

EDITOR'S NOTE

"An analytical mind with a passion for learning leads an individual to achieve success and glory."

We are immensely happy and satisfactory to finally introduce the very first volume of our very own departmental newsletter "MATHOMANIA". It portrays the co-cirruculum, artistic and innovative sides of the mathematics scholars. The newsletter plays a very crucial role as it exposes the hidden talents of the students as well as the faculty members. The students have put in their utmost efforts to churn out their creativity. As you discover on exploratory walks through the pages, we hope you cherish the work presented before you.

FROM COORDINATOR'S DESK

Dear readers,

It is a moment of great joy and pleasure to know that the Department of Mathematics is releasing the 1st volume of its newsletter "MATHOMANIA". It is a great pleasure on my part to welcome the young creative minds of our department for their attempt to enhance creativity by beginning the publication of the annual departmental magazine.

The department has recorded consistent improvement in its academic performance. I would like to sincerely thank my department faculties for their dedication and hard work. I must congratulate all the members of the editorial board for bringing up this issue in a better shape.

Dr. Bibudhendu Pati
Coordinator, Mathematics

Messages...

FROM THE PEN OF VICE CHANCELLOR

I am delighted to note that the Department of Mathematics publishes 1st issue of its newsletter "MATHOMANIA". This remarkable achievement showcases the unwavering dedication, passion and profound knowledge in the field of Mathematics. It will definitely inspires future batches of students to have more participation in the Departmental as well as other extracurricular activities. I wish a grand success of MATHOMANIA-2021.

Prof. Aparajita Chowdhury
HON'BLE VC,RDWU

FROM THE DESK OF CHAIRPERSON P.G. COUNCIL

It is my pleasure to place in record that the 1st volume of "MATHOMANIA", newsletter of Department of Mathematics is going to be released. It is a pride in my part, as Chairman, P.G. Council, to place in record, that Department of Mathematics with limited resources is spreading the knowledge of Mathematics through this newsletter "MATHOMANIA".

I applaud the Department for its relentless pursuit of academic excellence and for fostering a stimulating environment that nurtures intellectual growth and creativity. The launch of this magazine is a testament to your commitment to promoting mathematical literacy and inspiring future generations to explore the wonders of mathematics.

Prof. Sasmita Mohanty
C.P.G.C.,RDWU

MATHMAGICIANS SINE OF THE TIMES

DR. BIBUDHENDU PATI

DR. MINATEE DASH

MRS. SUBHASHREE RAM

MR. SATYARANJAN PRADHAN

PEN-O-STROKES

DEBARPITA MISHRA

SHEETAL PRIYADARSHINI

JUNGLE CALLS HER IVY

~ Sipra Sibani Parida

I want to flaunt my curls in a jungle full of horses and butterflies and make a wreath for myself. Mu desires start with a castle, a small wooden castle decorated by wild flowers, grasses, mushrooms, berries and cacti, along with candles. The magnificent vintage lantern outside of my tiny castle is a must, and I just forgot about the grassy and leafy umbrella, which is a little bit heavy because of its natural elements but beautifully decorated by ivy and peonies. There should be a small body of water, like a small stream or something small, that will not cause any problems for my castle. Under the summer moon and winter sun, it will give you vibe that you can't forget. Small pebbles and colourful wild flowers with mushrooms and cherry tomatoes may be fish, and a tortoise should be there. Fly orchids and bee orchids tangling and not going away from my long skirt would be a spectacular moment. But my home shouldn't be surrounded by so many big trees that the surroundings look murky and dark; instead, it should be cheerful and bright, where elephants want to dance and rabbits want to run, where I want to sing and no threatening and dim thoughts want to stay, where ducks walking in between Daisy fields feel at home, where waterfall sounds relaxing and wind feels like your mother, where a small blue-colored boat filled with dried leaves and some fruits is waiting for you to go on a ride through the jungle to say hi, where pink flowers make your front get romantic and where you feel alive, where I and nature are best friends, where I can bake and make a strawberry fountain, where you want to laugh and I want to die, where I want to be called Ivy.

UDAAN

~ Subhashree S. Baliarsingh

There is no limit to this sky,
To all the women, yet more to fly.
Widen your wings, out of the cage
To bring in you and them a change.
Plug in soft music in your ears,
Not let anyone realise you your fears.
Never look back to the point of emergence,
Let the journey be of smooth and not disturbance.
Forget everything that bind you to a relation,
As you are the most beautiful creation.
Above all the roles till date you played,
You, your identity should not fade.
Dates have changed, so does the time,
Do you need any opportunity to shine?
Be that thief of the moment,
Who not only will excel but defeat opponent.
In every sphere you want to move your steps,
Do rise, shine and name yourself a success.
Behind the dusky clouds, the name is hidden,
Fight for yourself and brighten the name WOMEN!

SIPRA SIBANI PARIDA

SATABDEE MAHAPATRA

DEBARPITA MISHRA

TO DO HERE IS A COMMON TASK

~ Smruti R. Das

The air is pure but not enough to breathe
There's shed everywhere but not to sit beneath
Roads to walk but not for drives
Hands maybe clean but no high fives
Rich have money but no way to spend
For poors, their poverty doesn't end
Festivals to celebrate but not to gather
No meet ups, 6 feet distance rather
There's is a day but no chores
Games to play but stay indoors
To take, there are not enough medicine
Staying safe is the only alternative
Hands not to shake but to sanitize
Definitely there will be a decrease in the rise
To do, here is a common task
To save yourselves, properly wear mask
There's a life but no meaning
Who knows how much more left for suffering
Enough to get diagnosed but no beds to rest
The increasing in news is hard to digest
Struggling for their lives to save
To die & lie on, there are not enough grave
Enters to invoke the sense of positivity
Researches still on to find ways for negativity
The culprit can be tested and felt but not seen
Everyday is the same scene
We are still united in this fight,
After every night, the sun shines bright

SIPRA SIBANI PARIDA

SATABDEE MAHAPATRA

WHY BEAUTIFUL?

~ Sheetal Priyadarshini

They keep saying that
Beautiful is something
A girl needs to be.
But honestly? Forget that.
Don't be beautiful.
Be intelligent, be funny,
Be crazy, be interesting,
Be talented, be adventurous.
There are an eternity of
Other things to be but
Why always BEAUTIFUL?
And what is beautiful
Anyway, a set of
Letters strung together
To make a word?
Be you own definition
Of amazing always.
That is so much more
Important than anything
Beautiful,ever.

BISAKHA MOHAPATRA

SATABDEE MAHAPATRA

SIPRA SIBANI PARIDA

SHEETAL PRIYADARSHINI

SATABDEE MAHAPATRA

THE BEAUTIFUL RED STAIN

~Swaha S. Pattnaik

Roses are red, so is the blood
Roses symbolises love but a bleeding woman is judged
Neither her blood is holy water nor is she holy
Every word thrown at her breaks her slowly
She fears to wear whatever is coloured light
For the patches that stains bright
Constantly she checks her clean dress
Not to make in public a mess
She bleeds to create a new life
Though in pain, she dies being alive
She is forced to sleep on the motherly earth
For everytime her bleeding takes rebirth
She is kept solitary; washes everything she touch
Why still the practice exist in society so much?
Body is coded differently month in and month out
The eggs walk through the red carpet laid down
Carrying mood swings, pain and cramps all the time
Rudely they behave as if we committed a crime
In those initial days, I thought it to be simple
Unless my face was painted with pimples
I could buy a sanitary napkin, how do a poor?
Why not selling it free and be a saviour
It's time to understand, strains aren't dirty or impure
Change your mind, the society will change for sure
It's isn't a choice rather a necessity
Being the strongest is her identity

ACHIEVEMENTS

Ambrita Pritam, bagged trophies in different college and state level Chess championships.

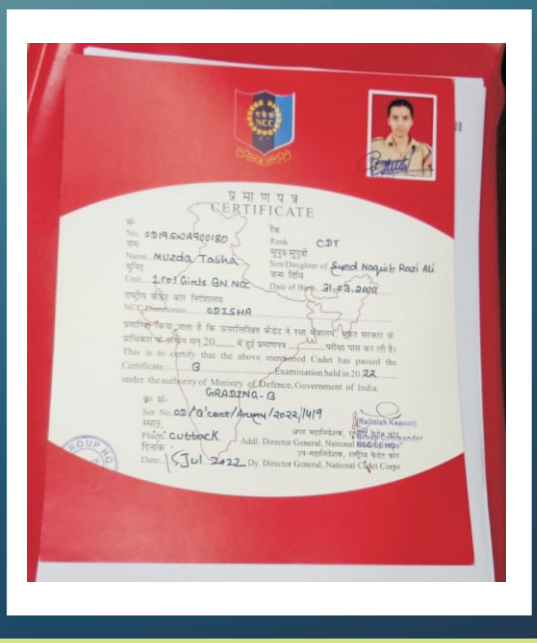
STATE POLICE SIGNALS, HDQRS.,
ODISHA, CUTTACK.

No. 2028 /R.O. Dtd. 29 / 12 /2021.

To

AMEE SAHU,
D/o- JAYAKRUSHNA SAHU
PLOT NO N6 337 IRC VILLAGE JAYDEV VIHAR BBSR,
PLOT N2 182,IRC VILLAGE INDIAN POST, KHORDHA, ODISHA – 751015

Amee Sahu, appointed as communication constable signal headquarter, Cuttack



Muzda Taliha cleared the NCC examination.

Mathematicians around the WORLD

Keith Devlin (1947 -)
Hull, England

Areas of Specialization: Theory of Information, Models of Reasoning, Mathematical Cognition

Devlin is formerly a Consulting Professor of Mathematics at Stanford University and now co-founder and Executive Director of Stanford's Human-Sciences and Technologies Advanced Research Institute, founded in 2006. He is also a member of Stanford's Center for the Study of Language and Information (CSLI), an important research center for work in computational linguistics, computer science, and mathematics. Devlin received his bachelor's (special) in mathematics at Kings College, London and his Ph.D. in Mathematics from the University of Bristol in 1971.

Areas of Specialization: Green-Tao Theorem, Erdős Discrepancy Problem, Compressed Sensing, Tao's Inequality, Analysis, Oscillatory Integrals

Tao is arguably the greatest living mathematician, and has been called the greatest mathematician of his generation. Born in South Australia, Tao was a child prodigy, the youngest person ever to win a medal in the International Mathematical Olympiad-he was ten. He has since won the Field Medal, the "Nobel Prize" for mathematicians. Terence Tao holds the James and Carol Collins Chair in Mathematics at the University of California, Los Angeles (UCLA).

Terence Tao (1975-)
Adelaide, Australia

Ian Stewart (1945 -)
England

Areas of Specialization: Catastrophe theory, Dynamical Systems, Bifurcation Theory, Pattern Formation, Biomathematics

Stewart is Emeritus Professor of Mathematics at the University of Warwick, England. Stewart received his bachelor's of arts degree (first class) in mathematics from the University of Cambridge in 1966 and his Ph.D. in Mathematics at the University of Warwick in 1969.

Areas of Specialization: History of Mathematics, Number Theory, Geometry, Foundations of Mathematics

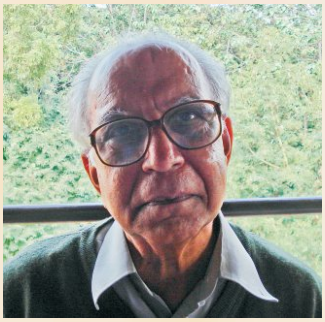
Born in Melbourne, Australia, John Stillwell holds the title of professor emeritus at the University of San Francisco. Though Stillwell came to USF in 2002, he spent the bulk of his career at Monash University in Melbourne from 1970-2001. Stillwell earned his PhD at Massachusetts Institute of Technology in 1970.

John Stillwell (1942-)
Melbourne, Australia

He was an Indian-American mathematician and statistician.He was professor emeritus at Pennsylvania State University and Research Professor at the University at Buffalo. Rao was honoured by numerous colloquia, honorary degrees, and festschrifts and was awarded the US National Medal of Science in 2002. The American Statistical Association has described him as "a living legend whose work has influenced not just statistics, but has had far reaching implications for fields as varied as economics, genetics, anthropology, geology, national planning, demography, biometry, and medicine."The Times of India listed Rao as one of the top 10 Indian scientists of all time.

In 2023, Rao was awarded the International Prize in Statistics, an award often touted as the "statistics' equivalent of the Nobel Prize".Rao was also a Senior Policy and Statistics advisor for the Indian Heart Association non-profit focused on raising South Asian cardiovascular disease awareness.

C.R. Rao (1920-2023)
Karnataka, India



M. S. Narasimhan (1932-2021)
Madras, British India

He was an Indian mathematician. His focus areas included number theory, algebraic geometry, representation theory, and partial differential equations. He was a pioneer in the study of moduli spaces of holomorphic vector bundles on projective varieties. His work is considered the foundation for Kobayashi–Hitchin correspondence that links differential geometry and algebraic geometry of vector bundles over complex manifolds. He was also known for his collaboration with mathematician C. S. Seshadri, for their proof of the Narasimhan–Seshadri theorem which proved the necessary conditions for stable vector bundles on a Riemann surface.

He was a recipient of the Padma Bhushan, India's third highest civilian honor, in 1990, and the Ordre national du Mérite from France in 1989. He was an elected Fellow of the Royal Society, London. He was also the recipient of Shanti Swarup Bhatnagar Prize in 1975 and was the only Indian to receive the King Faisal International Prize in the field of science.

He is an Indian mathematician who specializes in operator theory. He was born at Bhubaneswar in the state of Odisha to Prof Chakrapani Mishra and Smt Arunabala Mishra. He studied at DM School, BJB College, Sambalpur University (Masters, 1979) and State University of New York in USA (PhD, 1982). He taught at Indian Statistical Institute (ISI), Kolkata and Bengaluru before joining the Indian Institute of Science (IISc), Bengaluru where he is currently engaged in teaching and research.

He was awarded the Shanti Swarup Bhatnagar Prize for Science and Technology in 2001, the highest science award in India, in the mathematical sciences category. He was awarded the Biju Patnaik Award for Scientific Excellence by Odisha Bigyan Academy in 2013. Gadadhar found counter examples to a conjecture on similarity of operators in the Cowen and Douglas class. He gave an explicit description of the class of completely non-unitary contractions whose characteristic function is constant. He obtained a canonical model as well as complete invariants for a class of quotient Hilbert modules, and introduced the notion of quasi-free Hilbert modules to generalize parts of the Sz-Nagy-Foias model theory in the context of multi-variate operator theory. He obtained a classification of scalar homogeneous shifts and also calculated the joint Taylor spectrum of a class of multiplication operators on the "twisted" Bergman space. Misra described the holomorphic Hermitian vector bundles over the unit disc, which are homogeneous under the action of SL (2,R). He has carried out a complete classification of all irreducible homogeneous operators in the Cowen-Douglas class.

Gadadhar Misra (1956-)
Odisha, India