

DESAALITE NEWSLETTER



REFLECTORE

Newsletter by the Department of Science

September 2018

SFS/BSC 01/Sept 18

"Orbiting Earth in the spaceship,
I saw how beautiful our planet is.

People, let us preserve and increase this beauty, not destroy it!"

- Yuri Gagarin
(First human to journey into outer space)



In this Issue

Message from the Principal 1

Climate change and global warming 1

Department activities 2

Students corner 2

Faculty corner 3

Upcoming Event 4

Message from the Principal



Rev. Dr. Roy P K
Principal

Dear Desalites,

It gives me great pleasure to welcome all the students of the Department of Science to the academic year 2018-19.

St Francis de Sales College has provided all the necessary facilities for a conducive teaching and learning arena, such as a well-stocked library with its vast collection of books, journals, periodicals and a separate area for the digital library. Our laboratories are well-equipped for imparting practical knowledge in Physics and Chemistry. There are two computer laboratories featuring over a hundred computer systems. Electronics Laboratory is very well furnished with all the required instruments. The infrastructure

that the college has, is second to none. The college is also blessed with dedicated and academically excellent faculty who open the gate of knowledge for the students.

Students are requested to make the best use of the facilities provided to excel not only in academics, but also to mould themselves to be confident and realistic, such that, when they enter life after their studies, they face various encounters with courage, conviction and triumph.

Once again, I welcome you all to this great institution of higher learning. *God bless!*

Climate change and Global Warming

The Earth's climate has changed throughout history. Just in the last 650,000 years there have been seven cycles of glacial advance and retreat, with the abrupt end of the last ice age about 7,000 years ago marking the beginning of the modern climate era — and of human civilization. Most of these climate changes are attributed to very small variations in Earth's orbit that change the amount of solar energy our planet receives.

The current warming trend is of particular significance because most of it is extremely likely (greater than 95 percent probability) to be the result of human activity since the mid-20th century.

The heat-trapping nature of carbon diox-



ide and other gases was demonstrated in the mid-19th century. There is no question that increased levels of greenhouse gases must cause the Earth to warm in response.

Ancient evidence can also be found in tree rings, ocean sediments, coral reefs, and layers of sedimentary rocks. This ancient, or paleoclimate evidence reveals that current warming is occurring roughly ten times faster than the average rate of ice-age-recovery warming. Because we are already subjected to some level of climate change, responding to climate change involves a two-pronged approach: Mitigation and adaptation.

Let us consider this issue as requiring urgent and immediate attention!

Infinity 2018

- As part of INFINITY 2018 - the Guest Lecture Week, the department conducted three guest lectures.
- A lecture on “ Microprocessor” by Rajashri Padak, Professor and Head, Department of Physical Science, Seshadripuram First grade college, Bangalore was conducted on August 9, 2018 from 12.30 pm to 2 pm.
- Another lecture on “*Applications of mathematics*” by Dr. Suresh Kako, Post Doc Research fellow, Dept. of Mathematics, University of Haifa, Israel was conducted on August 9, 2018 from 10.30 am to 12 pm.
- Mr. Chandra gave a talk on “Good Laboratory Practices” on the 11th of August, 2018 from 10.30 am to 12 pm.
- All these guest lectures were a great learning time for the students as well as the staff. A new spirit of learning and research was infused.



Inauguration of the Department Associations and Fresher's Day



- The following are the new department associations formed under Department of Science:
- **IC Club**, an Association for students interested in electronics.
- **Eureka**, The Department Association for Physics
- **Maths πrates**, an association of students interested in promoting mathematics in the campus.
- **Kanika**, the Association of Chemistry students
- All the associations were inaugurated during Prayan 2018 on 28th August 2018 by the special guest Major Rejil Raj Abraham.
- Prayan 2018 was followed by the Fresher's Day Celebrations. All the new comers of the Department were welcomed. A number of events and activities were also organized. The day was a beautiful occasion to know more about the talents and potentials of the newcomers as well a chance to grow in the departmental bonding.

Interesting Facts from the World of Science

- ⇒ It takes 8 minutes, 19 seconds for light to travel from the Sun to the Earth
- ◆ Venus is the only planet to spin clockwise
- ⇒ A flea can accelerate faster than the Space Shuttle
- ◆ The only letter not appearing on the Periodic Table is the letter “J”.
- ⇒ If you could drive to the sun -- at around 90 km/hr -- it would take about 193 years
- ⇒ There are 206 bones in the adult human body and around 270 in children (as they grow some of the bones fuse together).
- ⇒ Prosopagnosia is a disorder in which people struggle to recognize faces
- ◆ An Astronaut can be up to 2 inches taller returning from space. The cartilage disks in the spine expand in the absence of gravity.



Student's Corner

The New Periodic Table Song

There's Hydrogen and Helium Then Lithium, Beryllium Boron, Carbon everywhere Nitrogen all through the air. With Oxygen so you can breathe And Fluorine for your pretty teeth Neon to light up the signs Sodium for salty times.

Magnesium, Aluminium, Silicon Phosphorus, then Sulfur, Chlorine and Argon Potassium, and Calcium so you'll grow strong Scandium, Titanium, Vanadium and Chromium and Manganese.

CHORUS: This is the Periodic Table, Noble gas is stable; Halogens and Alkali react aggressively. Each period will see new outer shells.

While electrons are added moving to Nickel coins you get Copper, Zinc Selenium and Bromine film While Ium and Strontium then Yttrium, Zirconium Ruthenium, Rhodium, Palladium Tin-cans, Antimony then Tellurium and... Barium is 56 and this is where just begun Lanthanum, Cerium and



Praseodymium. Neodymium's next

Europium, Gadolinium and Terbium Dysprosium, Holmium, Erbium, Thulium Ytterbium, Lutetium. Hafnium, Tantalum, Tungsten then we're on to Rhenium, Osmium and Iridium Platinum, Gold to make you rich till you grow old Mercury to tell you when it's really cold.

Thallium and Lead then Bismuth for your tummy Polonium, Astatine would not be yummy Radon, Francium will last a little time Radium then Actinides at 89. Actinium, Thorium, Protactinium Uranium, Neptunium, Plutonium Americium, Curium, Berkelium Californium, Einsteinium, Fermium Mendelevium, Nobelium, Lawrencium Rutherfordium, Dubnium, Seaborgium Bohrium, Hassium then Meitnerium Darmstadtium, Roentgenium, Copernicium.

the right Iron is the 26th Then Cobalt, and Gallium Germanium and Arsenic Krypton helps light up your room Rubidium. Niobium, Molybdenum, Technetium Silver-ware then Cadmium and Indium and Iodine and Xenon and then Caesium the table splits Where Lanthanides have

too Promethium, then 62's Samarium,

Tantalum, Tungsten then we're on to Rhenium, Osmium and Iridium Platinum, Gold to make you rich till you grow old Mercury to tell you when it's really cold.

Faculty Corner

FIELDS MEDAL

The Fields Medal is an award given to Eminent Mathematicians for their contributions in the field of Mathematics. This award is given once in four years. It is equivalent to Nobel Prize. For this year 2018, Fields Medal is awarded to four Eminent Mathematicians.

The first person, Caucher Birkar. He belongs to the University of Cambridge, UK. At present he is doing his research work in the same University. This medal is given to him for his proof of the boundedness of **Fano varieties** and for contributions to the **Minimal Model Program**.

The second Mathematician to receive this medal is **Alessio Figalli**. He belongs to Swiss Federal Institute of Technology Zurich, Switzerland. Now he serves in the same University. He is awarded this medal for his contributions to the theory of **Optimal Transport**, and its application to **Partial Differential Equations**, **Metric Geometry**, and **Probability**.

The third important to receive this medal is **Peter Scholze**. He hails from the University of Bonn, Ger-

many. He also serves in the same University. This award goes to him for transforming arithmetic algebraic geometry over **p-adic fields** through his introduction of **Perfectoid spaces**, with application to **Galois representations** and for the development of new **Cohomology theories**.



The fourth Mathematician who was honored with this medal is **Akshay Venkatesh** from Stanford University, US. At present, he is serving in the same University for Advanced study. His contribution to Mathematics is for his synthesis of **Analytic number theory**, **homogeneous dynamics**, **topology**, and **representation theory**, which has resolved long-standing problems in areas such as the equidistribution of arithmetic ob-

jects".

These illustrious persons all are our role models. We too can aspire to be as great as they are by our hard work and high focus.

Prof. Senthil Kumar,
Department of Science

SUMMER RESEARCH FELLOWSHIPS FOR SCIENCE TEACHERS & STUDENTS- 2019

I. SUMMER RESEARCH FELLOWSHIPS FOR SCIENCE TEACHERS & STUDENTS- 2019

The three national Science Academies; Indian Academy of Sciences, Bengaluru, Indian National Science Academy, New Delhi and The National Academy of Sciences, India, Allahabad offer several two-month Summer Fellowships to enable students/teachers (studying/teaching in India) to work with scientists associated with the three Academies during 2019. A copy of the application format, instructions to applicants including eligibility criteria, and a list of names of scientists/faculty who have consented to guide students/teachers to work on short-term projects is displayed in the online application.

Applications are invited from interested students and teachers from all universities and colleges affiliated to UGC/AICTE/MCI/Accredited Institutions of State Universities for these Fellowships. The application should include: (a) the application form in the prescribed format; (b) scanned copies of marks sheets from class X till the last examination; (c) a write-up (in about 150-250 words) as to what the applicant wants to learn and achieve. Student applicants should provide the email id of one of their teachers or HoD familiar with their work. The Academy will approach them for a recommendation letter in the prescribed format. The selected candidate should work with the assigned guide for two months any time during the calendar year, preferably during the summer.

- ⇒ Applications should be submitted **by logging onto** one of our websites [www.nasi.org.in and www.ias.ac.in; <http://www.insaindia.res.in>].
- The last date for receipt of applications online is 30 November 2018.

II. SUMMER RESEARCH FELLOWSHIP PROGRAMME – 2019 at Jawaharlal Nehru Centre for Advanced Scientific Research, Bengaluru

The Centre offers summer fellowships for two months to bright undergraduate and MSc students studying in India. This programme has proved to be popular and competitive; each year, about 2000 students from all over India apply for the ~80 fellowships awarded. All the fellowships are supported by the Department of Science & Technology, Government of India. Students are placed with research groups at JNCASR or with scientists elsewhere in India. They are paid travel expenses and a monthly stipend of Rs.10,000/- Selected students get the opportunity to participate in cutting-edge research, and several summer projects have led to publications in leading journals. The research area include life sciences, physical sciences, chemical sciences material sciences, engineering sciences and mathematics.

The students selected under this programme are placed with scientists at the Centre or elsewhere in India, for 2 continuous months with a stipend of **Rs.10,000/- p.m** and travel support as per Centre's norms. Detailed information and application form can be downloaded from <http://www.jncasr.ac.in/fe/srfp.php>.

- ⇒ Last date for downloading application form from website : 30 November, 2018 .
- Last date for receipt of completed application form : 8 December, 2018.

REFLECTORE is a Newsletter published from the **Department of Science - St Francis de Sales College, Electronics City, Bengaluru - 560100**. It highlights the activities of the Department and serves as a link between the Department as well as other colleges.

You are welcome to send your suggestions and feedback to sfsnewsletters@gmail.com.



Editorial Board: Fr Jijo Manjackal, Prof. Tison, Prof. Vinshy, Prof Nebula Murukesh

Design and Layout: Mr Richie Raju

www.sfscollege.in



SFS COLLEGE