

THE NUCLEUS

Greetings from the Core!

Monthly Newsletter of the Department of Chemistry, Mar Ivanios College | Issue no. 2, November 2017

A Talk with Professor Dr. János Mink



It was a delightful opportunity we got when we interviewed a very distinguished scientist, **Dr. János Mink from Hungary**. He is a specialist in **Molecular Spectroscopy**. He got his degree in Radiochemistry from Moscow in 1962 and his PhD from the Hungarian Academy of Sciences in 1980. Since 1982, he serves as the **Head of the Department of Chemistry in the University Veszprém**. He shared with us the nature of his work and how important the field of spectroscopy is to various branches in sciences. He told us that recent research findings in the field of spectroscopy has contributed a lot to the field of medicine. His ongoing research is on the **spectroscopic properties of human hair and skin**. Using this method, diseases and other abnormalities in tissues can be easily identified in the molecular level. **Diabetes can be easily diagnosed using spectroscopy of the human skin as sugar is mainly excreted in sweat by diabetic patients**. Such new innovations are a boon to the field of medicine. Spectroscopy has also helped in determining the contaminants in air pollution. His only disappointment is that the research is pretty costly and he hopes to reduce the cost yet maintaining or perhaps improving the outcomes of the research.

Release of The First Issue of “The Nucleus”

The first issue of The Nucleus, our department newsletter, was officially released on **10 October 2017** by our dear Principal, Rev. Fr. Gigi Thomas in the presence of Dr. Sumol Varghese, Head of the Department, Chemistry Association Coordinator Dr Sajith Kurian, Members of the editorial board and our dear teachers. It was indeed a very proud moment for our department.

Upcoming Events

- ◆ **Intradepartmental Quiz on Scientists** on the 15th of December
- ◆ **Seminar on Material Science** in association with MRS India (probable dates: December 11 - 13)

Check our website for more details

Congratulations



Verjín Sona Vijay

of SIII BSc Chemistry got a chance to perform as a playback singer for a film song along with Najim Arshad.

Scientist of the Month

Neils Bohr

*"Never express yourself more clearly
than you are able to think."*

— Niels Bohr.



A 500 Danish Kroner commemorated
in remembrance of Niels Bohr's Atomic Theory

Niels Henrik David Bohr (7 October 1885 – 18 November 1962) was a Danish physicist who made foundational contributions to understanding [atomic structure](#) and quantum theory, for which he received the **Nobel Prize in Physics in 1922**. Bohr developed the [Bohr model of the atom](#), in which he proposed that energy levels of electrons are discrete and that the electrons revolve in stable orbits around the atomic nucleus but can jump from one energy level (or orbit) to another. Although the Bohr model has been supplanted by other models, its underlying principles remain valid. Bohr founded the [Institute of Theoretical Physics at the University of Copenhagen](#), now known as the [Niels Bohr Institute](#), which opened in 1920. During the 1930s, Bohr helped refugees from Nazism.

After Denmark was occupied by the Germans, he had a famous meeting with Heisenberg, who had become the head of the German nuclear weapon project. In September 1943, word reached Bohr that he was about to be arrested by the Germans, and he fled to Sweden. From there, he was flown to Britain, where he joined the British Tube Alloys nuclear weapons project, and was part of the British mission to the Manhattan Project. He was involved with the establishment of CERN and the Research Establishment Risø of the Danish Atomic Energy Commission and [became the first chairman of the Nordic Institute for Theoretical Physics in 1957](#).

(Source: Wikipedia)



Element of the Month

Tungsten (W)

Atomic Number: 74

Oxidation States:

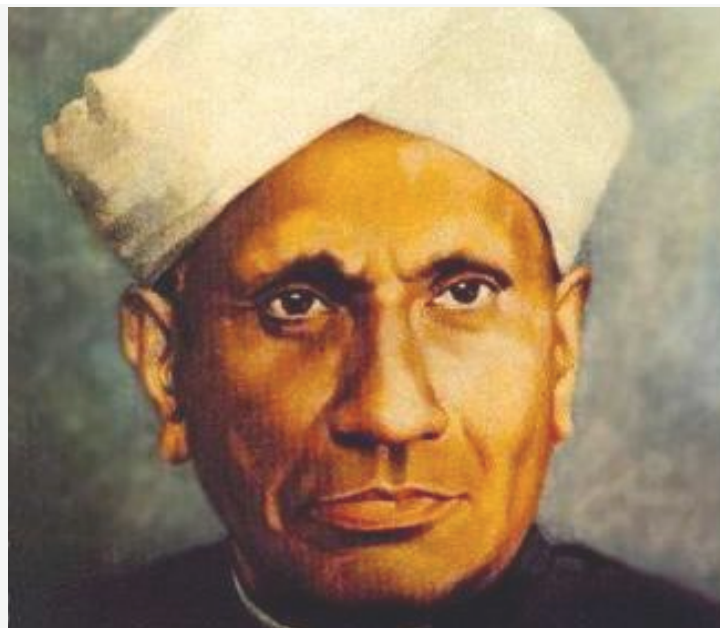
6, 5, 4, 3, 2, 1, 0, -1, -2, -4

Crystal Structure: BCC

Electronic Configuration:

[Xe] 4f¹⁴ 5d⁴ 6s²

The name tungsten comes from the former Swedish name for the tungstate mineral scheelite, from *tung sten* "heavy stone". Tungsten has the highest melting point of all the elements discovered, melting at 3422 °C. It also has the second highest boiling point, at 5930 °C. Its density is 19.3 times that of water, comparable to that of uranium and gold, and much higher (about 1.7 times) than that of lead. However, pure single-crystalline tungsten is more ductile, and can be cut with a hard-steel.



Remembering a Great Indian Physicist

C.V. Raman

7 Nov 1888 — 21 Nov 1970

When light interacts with a molecule the light can donate a small amount of energy to the molecule. As a result of this, the light changes its color and the molecule vibrates. The change of color can act as a 'fingerprint' for the molecule. This is known as the Raman Effect.

Today Raman spectroscopy, which relies on these 'fingerprints,' is used in laboratories all over the world to identify molecules and to analyze living cells and tissues to detect diseases such as cancer. Chandrasekhara Venkata Raman was a renowned physicist who won the Nobel Prize for his contribution in understanding the quantum nature of light. *His discovery made him not only the nations but even the first Asian Nobel-laureate.*

Lord Rayleigh, who had believed the teenage Raman's papers were the work of a professor, had been one of the great physicists of his day. He had won the 1904 Nobel Prize in Physics. His importance to Raman's story is that *Rayleigh had been the first to explain why the sky is blue.* He had then explained the sea's color by saying it was simply a reflection of the sky's color. One day, in the summer of 1921, Raman was on the deck of a ship in the Mediterranean Sea en route to the Congress of Universities of the British Empire at Oxford. He looked at the beautiful blue color of the Mediterranean Sea and began to doubt Rayleigh's explanation of its color. Rayleigh had correctly explained that the sky looks blue because of a phenomenon now called Rayleigh scattering. *If Earth had no atmosphere, anyone who happened to be around in such circumstances would see a white sun and a black sky.*

However, this is not what we see, because sunlight interacts with the gases in Earth's atmosphere. When he sailed back to India in September 1921 Raman, an indefatigable scientist, had with him some simple physics apparatus: a prism, a miniature spectroscope, and a diffraction grating. *He used these to study the sky and the sea and concluded that the sea was scattering light.* Hence when Rayleigh said the sea's color is simply a reflection of the sky's color, he was not wholly correct. *Raman reported his findings in a letter to the journal Nature.*

Raman and his students continued researching light scattering in gases, liquids and solids. In 1927 they found a particularly strong color change in light scattered by glycerol: Raman's team observed the effect in gases, crystals and glass. The effect might have been mistaken for fluorescence, another phenomenon in which light has its color changed, but in Raman's work the light scattered by liquids was polarized, which ruled out fluorescence. What came to be known as the Raman effect – a color change accompanied by polarization – had never been seen before.

The inelastic scattering at its heart was a further, very strong confirmation, of quantum theory. The Raman effect is a very small effect compared with Rayleigh scattering. Only about 1 in ten million photons undergoes inelastic scattering. Raman was awarded the 1930 Nobel Prize in Physics for "work on the scattering of light and for the discovery of the effect named after him."

(from various sources)

Editorial

Dr. Sumol Varghese
Head, Dept. of Chemistry

Dr. Sajith Kurian
Coordinator, Chemistry Association

Rohit Pyngottu Jacob
President, Chemistry Association

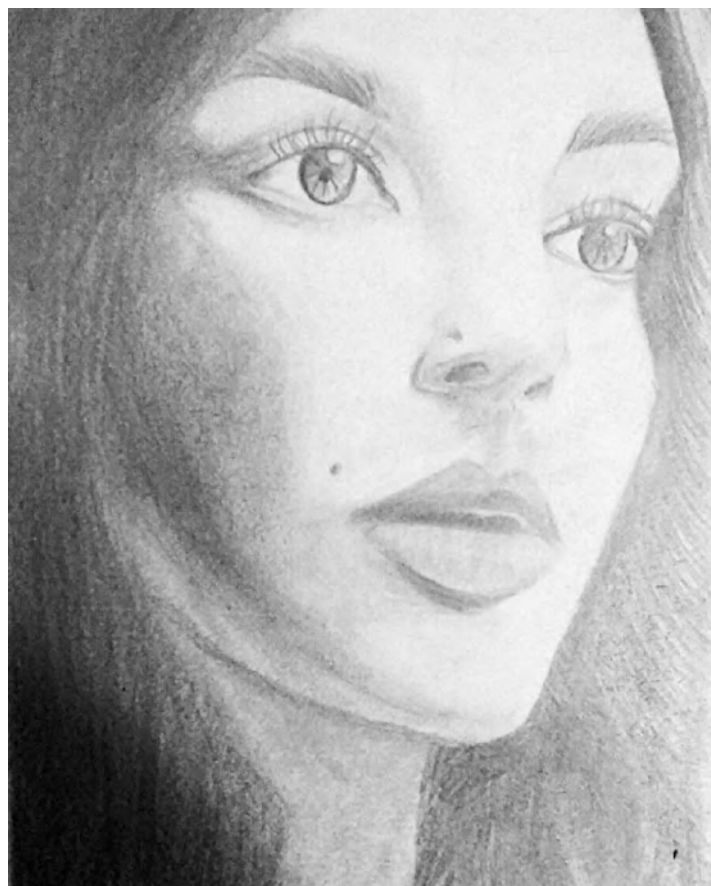
Akshaya Madanan
Secretary, Chemistry Association

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If you have any suggestions, let us know.



Portrait by Abhirami P.S.
(II BSc Chemistry)

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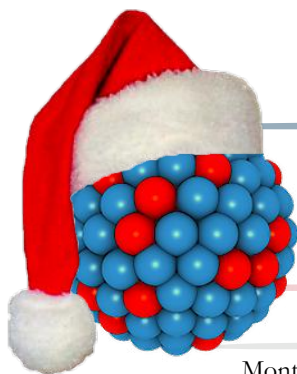
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THE NUCLEUS

NEW YEAR Greetings from the Core!

Monthly Newsletter of the Department of Chemistry, Mar Ivanios College | Issue no. 3, Dec 2017 - Jan 2018

The NSAFM - 2017

The three day **National Seminar on Advanced Functional Materials (NSAFM 2017)** jointly organized by the Materials Research Society of India (MRSI), Trivandrum and the PG & Research Departments of Chemistry & Physics, Mar Ivanios College (Autonomous), Trivandrum began on the 12th of December 2017 and carried on until the 14th. The seminar was inaugurated by the eminent scientist **Dr. A. Ajayaghosh** (*Director of CSIR-NIIST*). Dr. Manoj Ramavarma, Dr. G. Gouri, Dr. Sreejalekshmi, Dr. Narayanan Unni and Dr. Joshy Joseph were few among the renowned scientists who led the sessions on recent developments in the field of material chemistry. With our Principal, Rev. Fr. Gigi Thomas (*Chairman*), and the consistent hard work of Dr. Suju C. Joseph (*Convenor*), Dr. Suja Mathai (*Organizing Secretary*), Dr. Sumol Varghese (*HOD and Coordinator*), Dr. Kuruvila Joseph (*IIST*), Dr. Jijimon K. Thomas (*Faculty, Dept. of Physics*), Dr. Shyla Joseph (*HOD of Physics*), and the staff members of the Department of Chemistry, NSAFM - 2017 was a huge success and a milestone to both the Departments of Chemistry and Physics.

A Christmas to Remember

On 18th of December 2017, the students and staff members of the Department of Chemistry, visited 'സ്നേഹവിട്', a home for those who are differently abled, and spread the love and joy of Christmas to everyone there by presenting them with Christmas cakes and by singing carol songs with them. It was indeed a joyous occasion and a heart filling one, to watch everyone there enjoy the program to the fullest.

Congratulations



Rohit P. Jacob

of II BSc Chemistry, represented the University of Kerala for Western Violin Solo and Western Group Vocals at the 33rd Inter University South Zone Youth Festival

Visit to The Kerala Minerals & Metals Ltd. (KMML) Chavara

Kerala Minerals & Metals Ltd. is an integrated titanium dioxide manufacturing public sector undertaking in Kollam, Kerala, India. Its operations comprise mining, mineral separation, synthetic rutile and pigment-production plants. **KMML in Chavara, Kollam is the sole producer-cum-supplier of Titanium sponge in India.** This prestigious and pride institution has recorded 94.5% rise in quarterly profit recently. On the 3rd of December 2017, the students of Semester III BSc Chemistry had an informative visit to the KMML. Dr. Sumol Varghese, HOD and Dr. Sajith Kurian accompanied the students during the visit. The research scholars at KMML explained to the students, the production of Titanium Dioxide (TiO₂) from its raw material - **ilmenite**. The session was very interactive and students were able to clear many of their doubts regarding it. On the way back from KMML, the students had a fun time on the beach near Chavara, where they all put academics aside for a while and relaxed themselves on the beach.

Congratulations

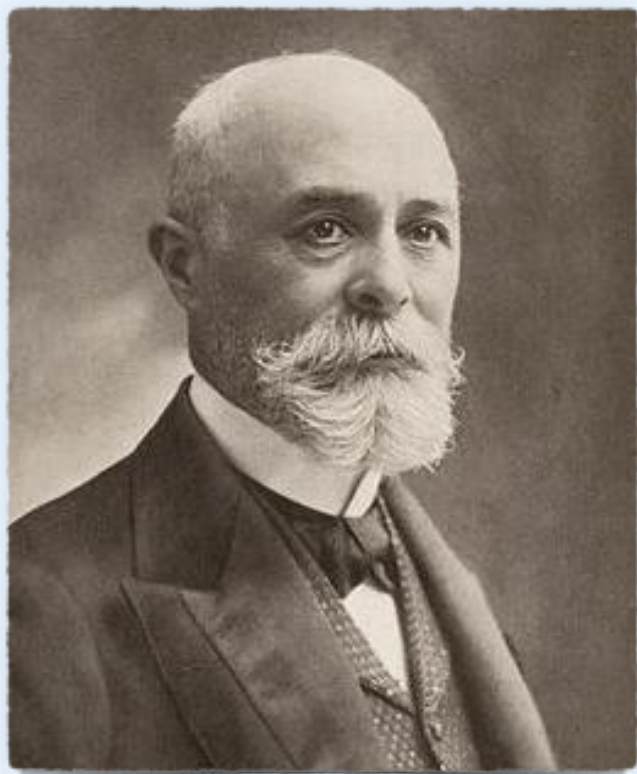


Anjali Satheesh J.

of II BSc Chemistry, represented **Mar Ivanios College** and won the second prize for Table Tennis at the **Kerala University Inter Collegiate Table Tennis Tournament**

Scientist of the Month

Henri Becquerel



"Undecisiveness is often the art of timely cruelty" - Henri Becquerel

Antoine Henri Becquerel (15 December 1852 – 25 August 1908) was born in Paris into a rich family which produced four generations of scientists. He studied engineering at the *École Polytechnique* and the *École des Ponts et Chaussées*. In 1892, he became the third in his family to occupy the physics chair at the **Muséum National d'Histoire Naturelle**. In 1894, he became chief engineer in the Department of Bridges and Highways. Becquerel's earliest works centered on the subject of his doctoral thesis: the plane polarization of light, with the phenomenon of phosphorescence and absorption of light by crystals.

Becquerel had long been interested in phosphorescence. In early 1896, in the wave of excitement following **Wilhelm Conrad Röntgen's** discovery of X-rays on 5 January that year, Becquerel thought that phosphorescent materials, such as some uranium salts, might emit penetrating X-ray-like radiation when illuminated by bright sunlight. But further experiments led him to doubt and then abandon this hypothesis.

By May 1896, after other experiments involving non-phosphorescent uranium salts, he arrived at the correct explanation, namely that the penetrating radiation came from the uranium itself, without any need for excitation by an external energy source. There followed a period of intense research into radioactivity, including the determination that the element thorium is also radioactive and the discovery of additional radioactive elements polonium and radium by Marie Skłodowska-Curie and her husband Pierre Curie. In **1903**, Becquerel shared the **Nobel Prize in Physics** with the Curies "in recognition of the extraordinary services he has rendered by his discovery of spontaneous radioactivity".

(Source - Wikipedia)

Element of the Month

Uranium (U)



Atomic Number: 92

Oxidation States: 6, 5, 4,
3, 2, 1

Crystal Structure:

Orthorhombic

Electronic Configuration:

[Rn] 5f³ 6d¹ 7s²

Uranium is a silvery-white metal in the **actinide series** of the periodic table. It is weakly radioactive with half-lives of its isotopes varying between 159,200 years and 4.5 billion years. Uranium has the **highest atomic weight** of the primordially occurring elements. Its density is about 70% higher than that of lead. It occurs naturally in low concentrations of a few parts per million in soil, rock and water, and is commercially extracted from **uraninite**. Many uses of uranium exploit its unique nuclear properties. **U-235 is the only naturally occurring fissile isotope**, which makes it widely used in nuclear power plants and nuclear weapons.

നോവിൻ രാക്കിനാവ്

തെളിയുന്നിതോർമ്മതൻ പുസ്തക-
താളിലീ മധുരിക്കും രാവുകൾ
ഓർക്കുന്നുവെന്റെ ജനലരികിൽ നിന്നു-
മാദിത്യോദയത്തിൻ കാത്തിരിപ്പ്
മിഴികൾ മുടിയതിനാലോയെന്നി-
കിരണങ്ങൾ കാണാനായില്ല
അല്ലയോ നീ കാൺവതില്ലേ നിന്നെ-
യന്ധനാക്കിയ ഇരുളിൻ വെളിച്ചം
അന്ധകാരമാമാത്മമിത്രത്തെ എന്നിൽ
നിന്നും പഠിച്ചെടുത്ത വെളിച്ചം
മിഴിനിരിൽ മുങ്ങിയ മിഴികളുമായി ഞാൻ
ഇരിക്കെ ചാരുവാൻ തോൾതന്ന മിത്രം

വെളിച്ചമിനിയും വന്നില്ലത് വന്നതേയില്ല
അല്ലയോ നീ കാൺവതില്ലേ
നിൻ പ്രാണഭേദങ്ങളെ
പിഴിതെറിയുവതെങ്ങനെ...
പകലുകളാൽ മുറിവേറ്റിടുമീ മനസ്സിനെ
തഴുകിപുണരുമീ രാവുകൾ
മിത്രമേ, അന്ധകാരമേ പൊറുക്കുവിൻ
നീയണയുച്ഛോൾ മയങ്ങിടും ഞാൻ
നീയെൻ ചാരെ ഇരിക്കവെ യീ-
പകലുകളെനിക്ക് വ്യർത്ഥം
ഓരോനിമിഷവും മാറോടണച്ചുഞാ-
നറിയാതെ നിന്നെ സ്നേഹിച്ചുപോയി...

Gouripriya D. A.
(II BSc Chemistry)

Solitude of Darkness

Five years it has been. The same room. The same food. The only difference in the days that would pass were the number of visitors who came to see me every day: that would drop over months and in the last two months only my parents came to visit me. But they came daily. Since five years, until yesterday when only my mother came to visit me and told me that my father had passed away the night before and that I have to attend the ceremonies. I am their only son: but I have my foot chained to the floor. I have often wondered whether the chain would perhaps break one day of tremendous rusting. Which reminds me: the day it was as shiny as silver... I remember it fine. I remember waking up in my bed terribly weak and tired from being sedated. And in front of my room through the grills I could see my relatives and friends all stare at me in pity. I remember walking towards the grill and watch them move back. I didn't know why, but I knew... there must have been a reason. There's always one, right? Or else why would my sister back away, all scared, just by seeing me just smile at her... I recalled the day I fought with her over the last piece of pizza on my birthday party... I remember the smile she gave me when I let her have it in the end... cherished memories. That's all what they are now. Cherished over years of solitude. I remember my relatives murmuring to each other the reason behind me being who I was in the cell. I remember returning to my bed. And on the way turning left to my wall: to find a window... I wasn't alone. There in the next cell, was a man. Just like me. He looked at me. He smiled when he saw me smiling at him. I walked towards the window. He came towards me too. I knew it someone who was suffering the same way I was. But it wasn't too long before I realised... that I really was alone and it wasn't a window but only a mirror.

Rohit P. Jacob
(II BSc Chemistry)

Editorial

Dr. Sumol Varghese
Head, Dept. of Chemistry

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Coordinator, Chemistry Association

Rohit P. Jacob
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Secretary, Chemistry Association

Contact Us

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www.micchem.weebly.com
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micchem@mic.ac.in

Poem of a Bond

We, your so called bonds,
Once coupled some friends -
Bringing them together,
We enjoyed either or neither

That numb twinkle tiny atoms
Plays out a nutty drama

On a day,
They go in with hand in hand
Then i was called covalent

Yet, another day, one generous one
transfers his wealth
Then my friend was called ionic

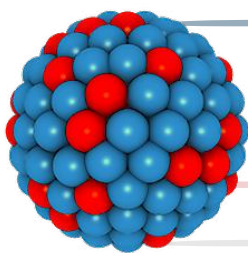
Double or triple or quadruple
We were again called as bonds
and at all day and night
For only that all noble one
We were the rubbish ones

Just like these atoms
We are also always different.

Kavya R.
(II MSc Chemistry)



Semester III students had a joyous evening on the beach after completing their industrial visit to the Kerala Minerals and Metals Ltd. Chavara, Kollam.



THE NUCLEUS

Greetings from the Core!

Monthly Newsletter of the Department of Chemistry, Mar Ivanios College | Issue no. 4, Feb - Mar 2018

“There are no goodbyes...
Wherever you'll be, you'll be in
our hearts.” — M. K. Gandhi



*Dr. Sumol Varghese, Head,
Department of Chemistry*

Dr. Sumol Varghese, daughter of Mrs. Sosamma Varghese and Mr. K. V. Varghese was born on 21st of April, 1962 in Thiruvananthapuram. After her school years, she joined Mar Ivanios College for Pre-degree. She completed her Graduation and Post Graduation in Chemistry from Mar Ivanios College itself and joined the service on 18th June, 1985. She obtained her doctoral degree in 2006 while she was in service. She served at Mar Ivanios College and St. Johns College Anchal (for a short duration) in the department of Chemistry. Dr. Sumol Varghese has

published research papers in national as well as international journals. She is a good singer and was a member of several committees like research promotion and ethics committee, value education committee, women's cell, CLMC for FDP and PG etc. She was the coordinator of several clubs like music club, performing arts club and coordinator of cultural programme committee, SC/ST/OBC welfare and grievance redressal cell in 2016-18. She is a member of the academy of chemistry teachers, Kerala University. From 2014, she has been serving as a member of academic council and as the chairperson of chemistry board of studies. In 2014, She was the deputy chairperson of the Kerala University Chemistry PG board. Since 2015, she has been serving as the Head of the Department at Mar Ivanios College. After 33 years of dedicated service in the Department of Chemistry and Mar Ivanios College, Dr. Sumol Varghese is retiring from her official duties in the month of April 2018. We, the entire community of Chemistry at Mar Ivanios college wish you all the best and hope that your retirement years will be the best of all.

**Dr. Sajith Kurian,
Dept. of Chemistry**

Congratulations

PG(2015-17) Rank Holders

Ist Rank - **Rajasree** (MSc 2015 batch)
IInd Rank - **Arsha** (MSc 2015 batch)

UG (2014-17) Rank Holders

Ist Rank - **Sneha** (BSc 2014 batch)
IInd Rank - **Sreekutty** (BSc 2014 batch)
IIIrd Rank - **Sreedevi** (BSc 2014 batch)

Congratulations

- * The Dept. of Chemistry won first place for the Cultural Rally “സംസ്കാരം” organised by the Mar Ivanios College Union (2017-18).
- * **Rohit P. Jacob** (II BSc Chemistry) and **Shamna V.** (II BSc Physics) won first place in the Inter Collegiate Science Quiz conducted by the Science Club.
- * The Chemistry Association Crossword Puzzle Competition: 1st prize won by **Saira Raichel Shoji** (I BSc Chemistry) and 2nd prize won by **Aparna B. S.** (I BSc Chemistry)
- * The Chemistry Association Love Letter Competition: 1st prize won by **Aparna B. S.** (I BSc Chemistry) and 2nd prize won by **Reshma Elizabeth** (II BSc Chemistry)
- * Poster Making Competition: 1st prize won by **Blaze Angela Gomez** (I BSc Chemistry)

Scientist of the Month

Stephen Hawking



*"However difficult life may seem,
there is always something you can
do and succeed at"* S. Hawking

Stephen Hawking (January 8, 1942 - March 14, 2018) was a British scientist, professor and author who performed groundbreaking work in physics and cosmology, and whose books helped to make science accessible to everyone.

Part of his life story was depicted in the 2014 film **The Theory of Everything**. Over the years, Stephen Hawking wrote or co-wrote a total of 15 books. A few of the most noteworthy include: **'A Brief History of Time'**, **'The Universe in a Nutshell'**, **'A Briefer History of Time'**, **'The Grand Design'** etc.

In September 2010, Hawking spoke against the idea that God could have created the universe in his book *The Grand Design*. In this work, however, he concluded that the Big Bang was the inevitable consequence of the laws of physics and nothing more. "Because there is a law such as gravity, the universe can and will create itself from nothing," Hawking said.

At the age of 21, Stephen Hawking was diagnosed with **amyotrophic lateral sclerosis** (ALS, or **Lou Gehrig's disease**). In a very simple sense, the nerves that controlled his muscles were shutting down. At the time, doctors gave him two and a half years to live. In a sense, Hawking's disease helped turn him into the noted scientist he became.

Before the diagnosis, Hawking hadn't always focused on his studies. "Before my condition was diagnosed, I had been very bored with life," he said. "There had not seemed to be anything worth doing." With the sudden realization that he might not even live long enough to earn his PhD, Hawking poured himself into his work and research. On March 14, 2018, Hawking finally succumbed to the disease that was supposed to have killed him more than 50 years earlier.

(Source - www.biography.com)

Element of the Month

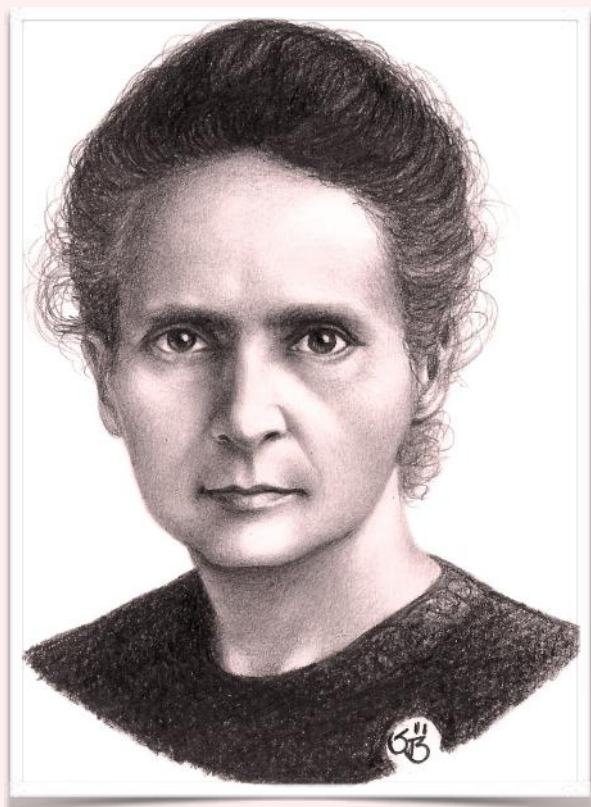
Mercury (Hg)



Atomic Number: 80
Oxidation States: 1, 2, -2
Crystal Structure:
Rhombohedral
Electronic Config:
[Xe] 4f¹⁴ 5d¹⁰ 6s²

Mercury is a chemical element with symbol **Hg** and atomic number 80. It is commonly known as **quicksilver** and was formerly named **hydrargyrum**. A heavy, silvery d-block element, mercury is **the only metallic element that is liquid at room temperature**. Mercury occurs in deposits throughout the world mostly as **cinnabar** (**mercuric sulfide**). Mercury is used in thermometers, sphygmomanometers, fluorescent lamps and other devices, though concerns about its **toxicity** have led to mercury thermometers and sphygmomanometers being largely phased out in clinical environments and be replaced by safer

(Source - www.wikipedia.org)



Marie Curie and the Discovery of The Magic Element

In 1911, Nobel prize for chemistry was announced. The Nobel Laureate — **Marie Skłodowska-Curie**. She was born in Poland and was a renowned scientist in both fields, Chemistry and Physics. **She was the first woman to win a Nobel Prize, the first person and only woman to win it twice, the only person to win a Nobel Prize in two different sciences**, and was part of the Curie family legacy of five Nobel Prizes. In 1903 the Nobel Prize for Physics was awarded jointly to Henry Becquerel, and Marie and Pierre Curie for the discovery of radioactivity. Maria Skłodowska Curie received the 1911 Nobel Prize for Chemistry for her discovery of elements **Radium** and **Polonium** from the ores of Uranium.

In 1895 German scientist **Roentgen** discovered **X-rays** and proved that it can enable the precise evaluation of internal organs. Marie Curie hypothesised that the radiation was not the outcome of some interaction of molecules but must come from the atom itself. This hypothesis was an important step in disproving the ancient assumption that

M. Skłodowska Curie

atoms were indivisible. Curie's systematic studies included two Uranium minerals, **pitch blende** and **torbernite**. In July 1898, Curie and her husband published a joint paper announcing the existence of an element which they named "Polonium," in honour of her native land — Poland. On 26 December 1898, the Curies announced the existence of a second element, which they named "Radium," from the Latin word for "ray". To prove their discoveries beyond any doubt, the Curies sought to isolate polonium and radium in pure form. Pitchblende is a complex mineral; the chemical separation of its constituents was a tedious task. Pitchblende contains both elements. By 1898, Curies had obtained traces of radium, but appreciable quantities were still beyond reach. The Curies undertook the arduous task of separating out radium salt by differential crystallization. From a ton of pitchblende, one-tenth of a gram of **radium chloride** was separated in 1902. In 1910, she isolated pure radium metal. She never succeeded in isolating polonium, which has a half-life of only 138 days. **She published that when exposed to radium diseased and tumour-forming cells were destroyed faster than healthy cells.**

These discoveries changed diagnostic and therapeutic possibilities in medicine and, particularly, in oncology. The discovery of X-rays by Roentgen was a turning point in diagnostics. It enabled precise evaluation of internal organs hitherto completely inaccessible for investigation. First, it became possible to visualise the bones; then, after introduction of various contrast media (barium meal, iodine preparations) other organs could also be visualised: the alimentary tract, biliary routes, and blood vessels. Even now radiology is an essential tool in modern diagnosis and, sometimes, in the treatment of many diseases. Natural radioactivity, discovered by Becquerel and Marie and Pierre Curie at the same time, led to new therapeutic and diagnostic methods in medicine. First clinical applications of radioactive substances were undertaken very soon after. As early as in 1899 **Tage Sjoergren** from Sweden reported the first case of a malignant tumour of the skin cured by use of radioactive source application. **The discovery of Radium is treated as the second mile stone in chemistry after the discovery of oxygen.**

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Heartfelt Gratitude



Mr. M. Rajan



Mr. S. Sisurajan

The Department of Chemistry would like to sincerely thank our Lab Assistants **Mr. M. Rajan** and **Mr. S. Sisurajan** for your peerless performance during these past years, in our laboratories, as we congratulate you on your retirement. The years you have worked here have been marked by unequalled efficiency, care, love and excellence. Both of you have put in great efforts in instilling tolerance, kindness, patience onto the students, the future generations. You have worked tirelessly, now it is time to enjoy all that you have laboured for all over the years. As you join the seniors of this great country, I pray for your good health. And may you find life after retirement a happy moment with lot of beautiful memories. We thank you for all you have done and all you have taught us.

II MSc Chemistry



III BSc Chemistry



Farewell,
Dear Seniors

*The future belongs to
those who believes in the
beauty of their dreams*

— Eleanor Roosevelt