



Mechanical Engineering

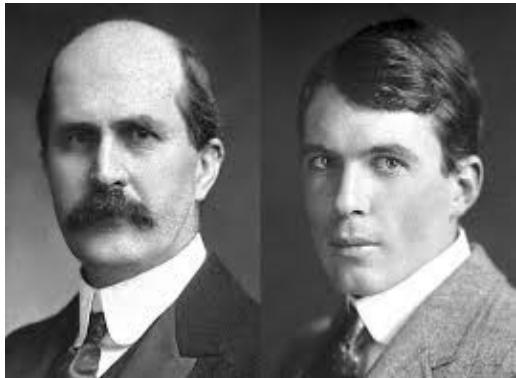
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All About Nobel Prize- Part 68

Henry and Lawrence Bragg

Like Father, Like Son



Receiving a Nobel Prize at the tender age of 25 can be a mixed blessing, especially if your fellow recipient happens to be not just an established and renowned scientist but also your father. William Lawrence Bragg shared the Nobel Prize in Physics with his father, William Henry Bragg, for their "Services in the analysis of crystal structure by means of X-rays."

Lawrence had been born and brought up in Australia where William, a native Englishman from Cumbria, had joined the Department of Physics at the University of Adelaide in 1885. William had excelled as a brilliant teacher, combining classical physics with the exciting new developments in the field. Yet it

wasn't until 1904 that William started his own research programme, inspired by the recent discoveries of Radium and radioactivity by Pierre and Marie Curie. William began to make important findings concerning how radiation removes electrons from an atom, known as ionization, and he enjoyed fruitful correspondence about his results with one of the main pioneers in the field, Ernest Rutherford.

In recognition of his research, William was elected Fellow of the Royal Society in 1907. In the interest of developing his research career, he moved to England with his family in 1909 where he was appointed as the Cavendish Professor of Physics at Leeds University. That same year, Lawrence entered Trinity College, Cambridge, to study physics.

It all began with a letter sent to William by his former student, the Norwegian physicist Lars Vegard, from Würzburg in June 1912 which contained precise and detailed information on Max von Laue's recent discovery that X-rays could be diffracted in crystals. But William was a firm proponent of the theory that X-rays are made up from particles.

Von Laue saw a pattern of spots, similar to the way visible light diffracts through holes and his explanation was that the space within the regular structure of a crystal was a similar size to the wavelength of X-rays, which are the conditions under which diffraction occurs. Von Laue's results could only mean one thing: X-rays are waves.

Lawrence's immediate reaction was to defend his father's position, but he grew more convinced that von Laue's explanation was correct. However, von Laue was unable to explain the phenomenon in greater detail. Finding out how exactly the diffraction spots were created was "my golden opportunity", as Lawrence later recalled.

In his first year of postgraduate study in Cambridge, Lawrence abandoned all earlier projects and concentrated fully on the diffraction question. Having just been examined on light, crystals and waves

for his degree, Lawrence's mind was fresh with all the relevant theories, and the words of Vegard's letter still lingered in his head. One day, like a bolt from the blue, he came up with an ingenious idea. After von Laue's discoveries, scientists knew that crystals are like a three-dimensional lattice structure of regularly repeating atoms. But Lawrence visualized this lattice structure as being constructed from a series of sheets of atoms, laid one on top of another, with each sheet behaving like a mirror. So the intricate pattern of dots that were produced by passing X-rays through a crystal is caused by a complex series of interactions in which some X-rays are reflecting off the first sheet of atoms encountered, some from the second, some from the third, and so on. From this intellectual breakthrough Lawrence could formulate his "Bragg equation", which connects the wavelength of X-rays (λ), the distance between successive sheets of atoms in a crystal (d) and the angle at which the X-rays strike these sheets (θ). Or as the equation states: $n\lambda = 2d \sin\theta$ where n is a whole number.

On 11 November 1912, William Lawrence presented his findings to the Cambridge Philosophical Society. For the next two years, father and son joined forces in an extraordinarily productive collaboration. Based on Lawrence's reflection idea, William built the first X-ray spectrometer, designed to examine the reflections of X-rays from crystals. Together, they examined a series of crystal structures, like common salt, diamond and explored the X-ray spectra emitted by different elements.

Despite his achievements and recognition, Lawrence did not seem to be taken seriously by the scientific community. Lawrence was knighted only in 1941, around 20 years after William had received the same honour.

However, Lawrence still seemed keen to set the record straight about the source of "Bragg's equation". Lawrence had succeeded Rutherford as the Cavendish Professor of Experimental Physics in Cambridge in 1937. There he championed the emergence of molecular biology by means of X-ray crystallography, culminating in the Nobel Prizes in 1962 being awarded to four of his Cavendish researchers: John Kendrew, Max Perutz, Francis Crick and James Watson.

Since 1992, the Australian Institute of Physics has awarded the Bragg Gold Medal for Excellence in Physics to commemorate Lawrence Bragg (in front on the medal) and his father, William Bragg, for the best PhD thesis by a student at an Australian university.

Source:

<https://www.nobelprize.org/prizes/physics/1915/>

Info to Alumni- Campus Update

National Sports Organisation Residential Camp – Between 11 July and 20 July, 2019, the National Sports Organisation (NSO) residential camp programme was conducted at SSNCE, coordinated by Dr P Balaji, Physical Director. The programme was run before and after the college hours, that is 5.45 am to 6.45 am in the mornings and 4.30 pm to 6.30pm in the evenings and had 220 second year students participating. During the course of the programme, several workshops were conducted, including Benefits of Yoga (13 July), Fitness programme (14 July), Sports Injuries and First aid (20 July).

Seven teams from SSN College of Engineering have won prizes in the Hardware Edition of the Smart India Hackathon held on 13 July 2019.

From 15 July, 2019 to 20 July, 2019 the Placement Training Program was conducted by SMART Training Resources India Pvt. Limited and organized by Mr Amit Tyagi for the post graduate students. This program comprised of aptitude and company specific training.

SSN OPEN 2K19, a National level Tennis tournament for Under-16 boys & girls and men & women was held between 19 July 2019 and 22 July 2019. More than 130 players and many AITA ranking players participated in the event. The overall cash prize amount was Rs. 1,10,000/- . This event was co-ordinated by Dr.P.Balaji, Physical Director.

On 22 July, 2019, Dr. Ganesh Shankar Samudra, Professor, NUS, Singapore, conducted a workshop on Accreditation, for SSN Faculty.

On 23 July, 2019, Dr. Ganesh Shankar Samudra, Professor, NUS, Singapore, conducted a workshop on Active Learning and a discussion on Design Thinking.

On 24 July, 2019, the orientation program was conducted for the first-year students of the 2019-2020 academic year

On 27 July, 2019, Mr U. Balamurugan of ELGI Equipments, Coimbatore visited SSN and shared information on their forthcoming student project idea competition.(ELGI technology Day).

SSN Faculty Heads were invited to receive Teaching Awards for students' performance in Anna University exams. The awards instituted by Education Matters.



Info to Alumni- Alumni Update

Mr C Arun Prakash writes...

The graduating class of 2018 has contributed a sum of Rs. 10800/- towards the Alumni fund. The donation forms have been handed over to the Alumni officer.



Mr C Arun Prakash

Info to Alumni- Department Update

On 13 July, 2019, Prof. T. Senthilvelan of Pondicherry Engineering College and Dr. M. Sasikumar of VIT, Chennai, performed external audit of Academic processes followed in the Department of Mechanical Engineering, as part of IQAC requirements. This was to oversee the new procedural requirements introduced for the Autonomous Stream.

External Recognition:

Dr D.Ananthapadmanaban reviewed the paper entitled Analysis and Structure Optimization on Buckling Destabilization and Wrinkling of an Automobile WeatherStrip Seal in Assemblage for the Journal of Institution of Mechanical Engineers,Part D,Sage Publishers [13.07.2019]



Dr D.Ananthapadmanaban



Dr.K.S.Vijay Sekar, Asso.Prof reviewed the following papers for the International Conference on Engineering Education and Innovation - ICEEI 2019 - Seoul as its Technical Committee member.

Dr.K.S.Vijay Sekar

1. Teacher Educator Agency: Dealing with Organization Culture while Designing the Curriculum of Initial Teacher Education
2. Differences in Self-Regulated Learning (SRL) and Online Learning Satisfaction Across Academic Disciplines: A Study of a Private University in Malaysia [23.07.2019]

Dr.K.S.Vijay Sekar, Asso.Prof reviewed the following papers for The 4th International Conference on Frontiers of Composite Materials (ICFCM2019), University of Queensland, Brisbane, Australia as its Technical Committee Member.

1. Failure Analysis of Composite Structures Using Multiscale Technique
2. The Process Development for Sound Absorption Design of Non-woven Car Mat
3. Design of Nutrient Enriched Cement Paste with a SuperabsorbentPolymer for the Bio-based Self-healing Concrete Development.
4. Thermal Conductivity Enhancement in Polymer-clay Nanocomposite via Casting Techniques
5. Influence of the developed flame retardant system based on renewable raw materials on epoxy resin combustibility [23.07.2019]

Research Activity:

Dr. S. Rajkumar, Associate Professor published a review paper entitled "A literature review of fuel effects on performance and emission characteristics of low-temperature combustion strategies" and available online in "Applied Energy" (**Elsevier; Clarivate Analytics Impact Factor – 8.426**) [01.07.2019]



Dr. S. Rajkumar



Dr. M S Alphin, published a research paper titled, Influence of handle shape and size to reduce the hand-arm vibration discomfort, WORK: A Journal of Prevention, Assessment & Rehabilitation, DOI: 10.3233.WOR-192948, pp. 1-12, 2019. Co-authors: Tony B Jain AR, Alphin M S (**Thomson Reuters, Clarivate Impact factor: 1.009**) [03.07.2019]

Dr. M S Alphin



Mrs. R. Rajeswari, Asst. Prof./ Mech, successfully defended her Ph.D thesis at IIT Madras [08.07.2019] (**More info in the faculty write up section**)

Ms. R. Rajeswari

Programs Attended:

Dr.K.S.Vijay Sekar and Dr.G.Satheesh Kumar, Associate Professors, attended a discussion forum on the National Education Policy at the International Law center, Chennai organized jointly by the Chennai Citizen's Forum and the Tamilagam research foundation [27.07.2019]



Dr.G.Satheesh Kumar

DC Meeting:



Dr. R. Damodaram, Associate Professor, conducted the Confirmation DC meeting for his part time PhD scholar Mr. Neminathan (24-07-2019)

Dr. R. Damodaram, Associate Professor, conducted the First DC meeting for his full time PhD scholar Mr. S. Cyril Joseph Daniel (24.07.2019)

Dr R Damodaram

Student Activity:

Shoba E, 2nd year, participated in a Rally and meditation event conducted by YRC. [9-7-2019]

Kalaiselvan K, Kalidass A, and Kapil Kishore V D, 2nd year, attended a Workshop on foldscope. [13-7-2019]

Muhilan, participated in IRC camp conducted by YRC. [18-7-2019]

Rajameenakshi M, 2nd year, participated in a Helmet Awareness Rally at Thiruporur. She also visited the Indian Red Cross Society (IRC), Egmore. [18-7-19]

Mohan Raj A, 2nd year, was part of Helmet awareness rally and Indian red cross society visit. [18-7-2019]

Sairam M, 2nd year, was part of NSS Foldscope Making. [20-7-2019]

A Kevin Christopher, 2nd year, participated in a cricket match. [20-7-2019]

PV Prasad, 2nd year, actively participated in a 10 day NSO camp held at SSN by the sports department of SSN. [20-7-2019]

Gundepudi V Surya Sashank, 2nd year, has completed around 8 courses in Data Science and Machine learning with an average grade above 95%. [27-7-2019]

Srinath V, 2nd year, was the India Quiz Winner. [27-7-2019]

Kiran P, 2nd year, participated in a Disaster management, first aid and fire safety workshop. [27-7-2019]

Kishore MG, 2nd year, participated in a Disaster management, first aid and fire safety workshop. [27-7-2019]

Mithun Kumar S, 3rd year, organized a seed collection event, helmet awareness rally and a talk on meditation events in YOUTH RED CROSS YRC CLUB.

He also organized a farming cleaning activity and a foldscope workshop and first aid camp in NATIONAL SERVICE SCHEME NSS CLUB. [27-7-2019]

Moulishwar RR, 4th year, completed a project during his internship period (13-05-2019 to 13-07-2019) at the Department of Metallurgy and Materials, IIT Madras. [13-7-2019]

Naveen V, 4th year, completed internship at Daimler India Commercial Vehicles. [19-7-2019]

Navneeth V, 4th year, won the 2nd place at the All India National Shorei-Kan Karate Do Championship. [13-7-2019]

Raghul Kanna S, 4th year, attended In-Plant Training in Daimler India Commercial Vehicles Pvt Ltd. [12-7-2019]

Faculty write up

Ms R Rajeswari, Asst. Prof/Mech writes...



PhD Viva-Voce

Finally, a long journey has come to an end (July 2012 to July 2019). Yes, I have successfully defended my Ph.D thesis titled "Performance evaluation of die-sinking EDM with powder mix and ultrasonic vibration through pulse train analysis" in the PhD viva-voce held on 8th July 2019 at IIT Madras.

Ms R Rajeswari

In this research, die-sinking EDM has been carried out on hardened D3 die steel work pieces and the pulse trains reflecting the gap phenomenon are investigated for the first time in conventional, powder mixed and ultrasonic assisted modes. EDM performances are assessed in terms of material removal and surface finish in rough and finish regimes respectively. A novel thresholding approach and two new parameters proposed in this work are able to capture the pulse characteristics and the EDM performances effectively.

Publications from this research

International Journals

1. Rajeswari, R and M.S. Shunmugam, 2018, Investigations into process mechanics of rough and finish die-sinking EDM using pulse train analysis, *International Journal of Advanced Manufacturing Technology* (TR indexed, IF-2.601), 100(5-8), 1945-1964
2. Rajeswari, R and M.S. Shunmugam, 2019, Comparative evaluation of powder mixed and ultrasonic assisted rough die-sinking EDM based on pulse characteristics, *Proceedings of the Institution of Mechanical Engineers, Part B: Journal of Engineering Manufacture*, (TR indexed, IF-1.752), DOI: 10.1177/0954405419840569 (published online)
3. Rajeswari, R and M.S. Shunmugam, 2019, Finishing Performance of Die-sinking EDM with Ultrasonic Vibration and Powder Addition Through Pulse Train Studies, *International Journal of Machining Science and Technology*, (TR indexed, IF-1.716), (Accepted for publication)

International conference

1. Rajeswari, R and M.S. Shunmugam, 2018, Effect of powder mix and ultrasonic assistance on pulse train based specific energy in EDM of D3 steel, 7th International and 28th All India Manufacturing Technology, Design and Research Conference, Dec 2018, Anna University, Chennai, India (**Awarded best paper by Springer, article in press**)

I thank the SSN management, President, Principal, HOD-Mech., HOD-ECE and my colleagues for their support extended towards the successful completion of this PhD research.

Faculty write up

Dr. M Nalla Mohamed, Assoc. Prof/Mech writes...



Guest Lecture

Dr M. Nalla Mohamed, and Dr M S. Alphin jointly organised two guest lectures on 01.07.2019 to third year Mechanical Engineering students. First lecture was delivered by Mr. Akhilnandh, Engineer, Brakes India Limited, Chennai on the topic "Failure Mode and Effects Analysis (FMEA)". Second lecture by Mr. Babu Devendiran, Managing Director, Future CAE Technologies (UK) Ltd, Chennai on the topic "Open source FEA /CFD".

Dr. M Nalla Mohamed



Mr. Akhilnandh, Engineer, Brakes India Limited, Chennai



Mr. Babu Devendiran, Managing Director, Future CAE Technologies (UK) Ltd

Platypus: a craft that offers diving experience for those who cannot dive!



Platypus Craft is a French company founded in 2009, expert in the design and development of innovative watercraft dedicated to recreation and yacht markets. The Platypus is a revolutionary nautical concept for exploration of shallow waters. This semi-submersible watercraft can navigate either on or under the water. It is accessible and usable for both surface navigation and immersion.

Easy to use

Platypus is designed to be used without special skills. While sitting on the platform, the user's head may be submerged between 30 and 80 cm under

water depending on the immersion level of the platform. Platypus provides decompression and optimal safety. A boat license may be required depending on the power of the engine, from 6HP to 100HP.

Easy to maintain

Platypus concept is innovative and patented. All components are selected from standard and reliable marine components. The design is based on standard solutions: Platypus provides simple maintenance like all good boats!

Safety

Platypus offers a high level of security by meeting the standards of CE certification. Platypus has propeller cages and the cockpit offers a 360° view whether the pod is above or under the water surface. The cockpit is located on the back of the pod so that the pilot can drive the craft and permanently monitor the passengers. To certify the craft as a standard boat and ensure optimum safety, the cockpit is equipped with a digital Periscope, a digital system consisting of a waterproof screen and surface cameras providing a 360° viewing angle.



Applications:

1. It is being used for cleaning the waste located on the sea coast. In standard configuration, the Platypus is able to quickly fly over underwater areas to locate the pollution, and guard the status of wildlife and flora.
2. Platypus allows disabled people to dive safely and easily. Adaptations form of equipment are being developed in cooperation with our Handiplongée ambassador, Philippe Streiff, former F1 driver, became a tetraplegic and now Technical Advisor of Road Safety to the French Minister of Transport.
3. It is also used for recreational activities like scuba diving. Product certified as a Class C boat with CE Certification. A Class C boat is a vessel built to navigate inshore such as lakes, rivers, bays and close to the shore and can sustain UP TO force 6 and waves UP TO 2 meters.

Source:

<https://newatlas.com/platypus-blue-ocean-sale-production/60317/>

<https://www.platypus-submarine.com/>

VYANKESH AUTOMOTIVE INDUSTRIES

From the website:

Vyankatesh Automotive Industries is a leading service provider of Integrated Machining Solutions for the Engineering Industry since 2006. Vyankatesh Automotive's solutions enable customers to meet today's challenging manufacturing cycles. It is located at MIDC Gokul Shirgaon, an industrial hub of Kolhapur. The company created manufacturing facility under one roof for various industries like automobile, engineering, etc.

They manufacture various products such as bearing housings, clutch cams, adjusting screws, hubs, etc. Their customers include companies like TATA motors, Mahindra and Carraro.



If interested to work here, contact: vyankatesh.auto@gmail.com

Visit: <http://www.vyankateshauto.com/>

Amazing Innovation- 125

Desalination using solar power



The device was developed by scientists at Australia's Monash University, who say that water treatment accounts for around three percent of the world's energy supply. These devices concentrate sunlight onto a body of water, heating it up and causing it to evaporate. The resulting steam can then be used to drive turbines that produce electricity in concentrated solar power plants, perhaps sterilize medical equipment cheaply for the developing world, or simply to separate salt from water. This device can produce six to eight litres (1.6 to 2.1 gal) of clean water per square meter (of surface area) per day.

It consists of a disc crafted from super-hydrophilic filter paper, a material that attracts water, which is coated with a layer of carbon nano-tubes that convert sunlight into heat. Water is fed into the centre of the disc via a simple cotton thread, where the heat turns it into steam that builds up on the disc while pushing the salt to the edge. But one problem with the lattermost application is that the salt tends to gather on the surface of the material, which makes it difficult to produce pure water. Zhang and his colleagues who developed this device hope that with further work, the device could be put to use providing clean water to remote communities that are currently without access.

Source: <https://newatlas.com/solar-steam-generator-water-desalination/>

Amazing Innovation- 126

Driving two trucks at a time



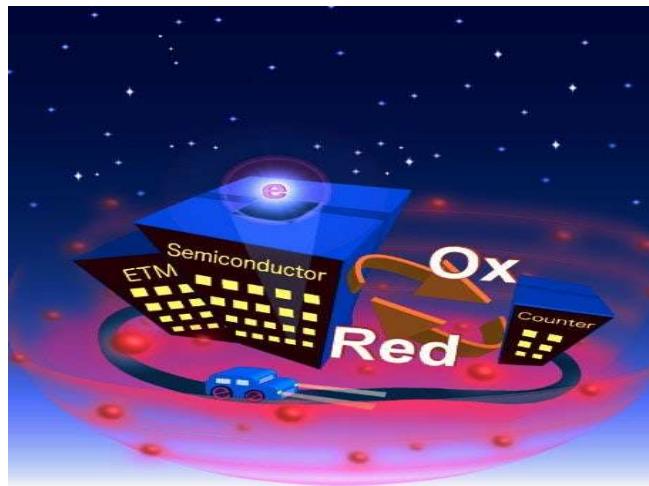
Start-up Peloton has an interesting take on the concept of automation of trucks, describing an automated following system that would effectively allow a human to drive two trucks at once. It is couched in vehicle-to-vehicle communication technology, with autonomous trucks continuously broadcasting their position on the road to others in a fleet. This would allow the trucks to travel much more closely than they would if humans were in control, which can reduce congestion, accidents, fuel usage and carbon emissions.

Its newly announced feature could allow truck drivers to pair their vehicle with another to allow both the trucks be controlled by a single driver at the same time. Using radar-based braking and the company's vehicle control software, the paired truck follows the lead of the human-controlled vehicle in front, copying its steering, acceleration and braking along the way.

Source: <https://newatlas.com/peloton-autonomous-truck-technology/>

Amazing Innovation- 127

Heat to electricity through geothermal batteries



The Sensitized Thermal Cell (STC) is a battery made up of three layers of material sandwiched between two electrodes. There's an electron transport layer (ETM), a semiconducting layer of germanium, and a solid electrolyte layer that transports copper ions. This battery is designed to be buried in the hot ground.

The idea is that the heat in the ground excites the electrons in the semiconductor, causing them to transfer to the ETM. That in turn passes them via the electrode through an external circuit and eventually back to the other electrode and into the electrolyte. There, oxidation and reduction (redox) reactions take place, which carries low-energy electrons back into the semiconductor, starting the cycle over again.

Most geothermal systems work using water heated by hot rocks a few kilometers below the Earth's surface. That water is either naturally present and pumped to the surface, or pumped down, heated and pumped back up. Such systems often need high temperatures, over 180° C (356° F), to work, and don't necessarily scale up that well. And this research might turn up to be very innovative in the energy production sector.

Source: <https://newatlas.com/geothermal-energy-sensitized-thermal-cells/>

Amazing Innovation- 128

The revolutionary drive –in-wheel that spins 360 degrees

The Protean360+ corner module is a self-contained, all-in-one drive train, suspension and steering assembly for autonomous electrics. It comprises a ProteanDrive hub motor, rim and tire, and a miniature double-wishbone

suspension system with a damper mounted in a steering arm that can rotate the entire unit 360 degrees or pneumatically raise and lower the chassis above it.



Mount one of these on each corner of a skateboard chassis full of battery, and you get yourself a vehicle you can stick a nice big, roomy people pod on top of, with fully electronic control over drive, braking, chassis lift and steering, and each wheel being able to rotate a full 360 degrees. That means your little pod can happily move sideways in and out of tight parallel parking spots, or turn super-fast donuts on the spot as your horrified passengers vomit all over the advertising screens you've installed to squeeze a few extra bucks out of your mobility pod business. When it stops to let people in and out, it can lower itself right down to ground level, making life easy for oldies, youngsters and wheelchair users as they hop in and out.

Source: <https://newatlas.com/protean-electric-360-degree-wheel-motors/>

Alumni Update 1



Sharan Srinivasan, final year, writes as a part of the Alumni Documentation series...

Sharan Srinivasan

I would like to introduce to all of you Srivatsan Ramesh, who is currently employed at Tellus, San Francisco, as a Machine Learning Engineer. He completed his undergraduate with us in the year 2017 and went on to pursue MS Industrial Engineering at Columbia University, New York.



Srivatsan Ramesh

At SSN, Srivatsan was actively involved in various club activities like the English Literary Club (ELC), Quiz Club, Entrepreneurship Cell to name a few. He developed an interest towards Industrial Engineering and completed internships at Renault-Nissan and Ford where he worked in areas such as Supply Chain Management, Ergonomics and a six-sigma project based on the Ford Eco Sport.

At Columbia, Srivatsan excelled despite the transition to a different stream and successfully completed work experience at reputed organizations such as Louis Vuitton and Fireflies.ai. His work was more aligned towards the field of Machine Learning and had the opportunity to take part in the Louis Vuitton Global Supply Chain Contest where his team secured the first place. Apart from this he also served as a Student Athlete Tutor on campus where he conducted classes on Vector Calculus, Derivatives and Differential Equations.

My interaction with him focuses on the common issues faced during transition of education stream, cost of living, selecting the most suitable university, how to equip oneself for an MS in Industrial Engineering and job-hunting. **Please do refer to your SSN email for the complete interaction with Srivatsan.**

Alumni Update 2

Akhilnandh Ramesh writes... (From mail to VeA)



Dear Sir,

As you are aware, I studied in the mech department at SSN from 2012-2016. I got placed in Brakes India through campus and worked for close to three years, first year as a process and production engineer in the shop floor at their Mahindra City plant (Exports) and then for 2 years in the Corporate Quality Assurance department in New Product Development and Audit (ISO 9001:2015 & IATF 16949:2016) wing and then with Customer Concerns Wing , as the customer service window person for multiple commercial vehicle OEMs in India.

I wish to inform you that I got a \$10K scholarship to study Engineering Management at The University of Auckland and have moved there for my higher studies.

Alumni Update 3

Karthik Ram Subbajah writes...

Hello SSNites!

It is indeed a blessing to be in SSN and particularly being in Mechanical! To me the reason is the freedom you get to shape your life professionally and personally without losing the happiness associated with college life. Make the best use of this platform with diligence. This write up is divided into three parts based on the phases we would be crossing.



Third Year of College - Confused mind:

This is the time you start preparing for various careers like GATE, GRE, CAT, placements, UPSC etc. While choosing one career, talk to a lot of appropriate people and analyse deeply. Also check whether the chosen one is indeed your true practical calling so that you can give your maximum hard work and do not get distracted on the way.

Final year of college - Placements:

It is a tricky puzzle that can be solved only by the respective individuals without much external help. There are two common pitfall you should not get into while being rejected in GD/Interviews,

- Blaming yourself for the result and get dejected
- Blaming others/situations (like difficult topic, tight competition, rigid interviewer etc) without looking into your own mistakes

In fact, Caterpillar was my sixth interview. Evidently my first interview was very poor. But I was looking into cutting the mistakes and developing confidence. At the end of each GD/Interview analyse deeply what might be the reasons for rejection (or in fact it was just not your day). Discuss with faculty placement coordinators, seniors, friends for their guidance. Also there are various online resources like inc.com, thebalancecareers.com etc., where there are abundant resources for GDs, resume preparation, interview techniques etc. Also read a lot of magazines like India Today, Forbes etc., (All are in our library!). This habit would develop your language and also help in framing constructive opinions on various topics. Also, it would show how to use data & facts to supplement your viewpoint during GD.

Start of career:

Networking is important within the company. Stay connected with a lot of people, because at many difficult times, knowing the right people will decrease your difficulty drastically. Also while deciding further career move, do not decide based on the external things we see in that job/ career path. Two important things to be noted:

- Plan the day to day activities of the career path you are planning to move into. In many companies, there will be job shadowing opportunities (like rotational assignment etc.). Look for those opportunities and get to know that job/ career in detail.
- Have a long term approach in deciding your profession. The priorities that you have now are different from your priorities of future as initially you will be devoid of personal commitments. Always question yourself what you would be in five years from the time you make that particular career move before making it. Having said all these, best of luck for a great future!

And please feel free to contact me for any guidance on karthikram.arunachalam@gmail.com.

Forthcoming events

Workshop/Seminar

August 2019

Attention: ME Energy students

- VIT Chennai is conducting a 2 day National workshop titled "Thermal System Simulation and Optimization using Cycle-Tempo" during **August 9th and 10th**. The workshop will provide hands on training in using the **Cycle-Tempo software** to model thermal systems like steam power plants, gas turbine power plants, combined cycle power plants, co-generation systems, gasification systems, refrigeration plants etc. A **30 day valid free license** will also be given to the participants so that they can practice and if possible communicate an article. The participant must bring their laptop for the workshop. Register by **Aug 2,2019**. Fee Rs.1000. For details contact joseph.daniel@vit.ac.in

Attention: Final year UG and PG students

- SSN Alumni Association is going to conduct a Carrer Development Workshop covering "Mock Interview" for all the final year B.E./ B.Tech & M.E./ M.Tech students on **10th August 2019**, 10.00 am at SSN Campus. Last year more than 140 students have been benefited in the mock interview. **Register on or before Aug 2, 2019** at: <https://forms.gle/9cg8SkbxBGqQV8uF7>
- The Department of Mechanical Engineering, National Institute of Technology Karnataka Surathkal, is organizing a TEQIP-III sponsored 3 day National workshop on INTELLIGENT OPTIMIZATION TECHNIQUES FOR ENGINEERING PROBLEMS, during **Aug 19-21 2019**. Register by **Aug 2,2019**. Fee for students RS.1180. gnanasekaran@nitk.edu.in
- The Department of Mechanical Engineering of S.A. Engineering College, Thiruverkadu, Chennai, is organizing 2 Days National Workshop & Hands on Training on "Recent trends in 3D Printing Techniques applied to Automobile & Aerospace Applications" on **21st & 22nd August 2019** at S.A. Engineering College Campus. **The major highlights of the Workshop include:**
Hands on Training on printing of 3D printing of PLA & ABS Components.
Live demonstrations on Design & Fabrication of Desktop 3D Printer.
Registration by payment of Rs.760 at

<https://www.instamojo.com/@mechworkshop/la8cab1dceb394a4cb7b0a4f39529119c/>

Attention: UG students - No registration fees

- Coimbatore Institute of Technology, Coimbatore, is organizing a TEQIP sponsored, Two Days National Level Workshop for students on, "Applications of Thermal Engineering" on **13th and 14th September, 2019**. The course is primarily aimed at imparting knowledge on the Laws of Thermodynamics owing to its applications in the field of Thermal Engineering.

Registration form duly signed by the Head of the Department should be sent on or before **24th August 2019**. (For brochure-contact VeA). For details, contact Samsolomon@cit.edu.in.

- The Department of Physics of SSNCE, in collaboration with Positron Foundation will be holding a Hands-on Two -day Workshop on "Basics of Observational Astronomy, Astrophotography and Post-processing techniques" at SSN College of Engineering. The workshop is open for UG/PG students and all astronomy enthusiasts. The workshop begins at 1.30pm on **August 24th**, Saturday and ends at 12.00pm on Sunday the **25th of August** 2019 with stargazing and recording session in the night apart from the hands-on training on post-processing. Details at www.ssn.edu.in/astrophysics.index.html (Coordinated by Dr. Prita Nair)
- The Department of Mechanical Engineering @KSRCT is organizing an AICTE sponsored Two Week Faculty Development Programme on "Digital Manufacturing: Integrated Technology from Design to Manufacturing" from **11-25 September 2019**. Apply on or before **Aug 26,2019**.

September 2019

- Mechanical Engineering Department of National Institute of Technology, Durgapur, is organising a GIAN course on "Fuel Cell Power Generation and Battery Storage", during **September 16 – 20, 2019**.
16.09.19 Electrochemical devices and its electrochemistry and thermodynamics
17.09.19 Heat & mass transfer and performance characteristics
18 – 20.09.19 - Electric Battery Storage and integration with other power generation sources and National Grid. Registration Rs.1000 for students. Rs.3,000 for faculty.
Course coordinator amaranth.mullick@me.nitdgp.ac.in
- A Three Day Short Term Course on Theory and Technology of Silicon Solar Cells will be held during **26-28 September 2019** at The National Centre for Photovoltaic Research and Education (NCPRE), Indian Institute of Technology Bombay (IIT Bombay).
Fees: Rs.6,000 for Scholars and Rs.12,000 for faculties.
For more details, please visit https://portal.iitb.ac.in/ceqipapp/courseDetails.jsp?c_id=2253

Conference

August 2019

- Nanyang Technological University, Singapore, is organising an International conference on Innovative and Advanced multi disciplinary Research (ICIAMR 2019), during **October 12-13, 2019**. Paper submission by **Aug 5,2019**. Details at <http://iamrf.org/>
- Department of Metallurgical and Materials Engineering,National Institute of Technology-Tiruchirappalli, is organizing an International Conference on Recent Trends in Metallurgy, Materials Science and Manufacturing ([IMME19](#)) during **Dec 27-28, 2019**. For details, visit <http://imme19.nitt.edu/>
Paper submission at :<https://easychair.org/conferences/?conf=imme19>

on or before **Aug 20,2019**

- The Department of Mechanical Engineering of VFSTR (Vignan's Foundation for Science, Technology and Research, Deemed to be University), Vadlamudi, is organizing an International Conference on Emerging Trends in Mechanical Engineering (ICETME-2019). The Conference is scheduled to be held during **8 - 9th November 2019** in VFSTR, Vadlamudi, AP, India. The last date for submission of full-length paper is **30th August 2019**. More information can be had at www.vignan.ac.in/icetme19.
- International Conference on Advanced Materials for Sustainable Energy and Sensors (INCAMSES-2019), **16-17 September 2019**, Department of Physics, Alagappa University, Karaikudi-630003. Last Date of Abstract Submission: **30 August 2019**
Mail your abstract at: incamses@gmail.com
- National Conference on New-Generation Materials for Energy Applications, **21-22 October 2019**, Department of Physics, B.S. Abdur Rahman Crescent Institute of Science & Technology, Vandalur. Paper submission by **Aug 30,2019**. Website : www.crescent.education

September 2019

- The Institution of Engineers (India), Punjab & Chandigarh State Centre will be organising the International Conference on "Electronics & Communications, Renewable Energy and IoTs: Vision 2040" at Chandigarh, during **September 07-08, 2019** under the aegis of the Electronics & Telecommunication Engineering Division.
- The Department of Electrical and Electronics Engineering of V R Siddhartha Engineering College, Vijayawada, is organizing an International Conference on SMART ENERGY SYSTEMS AND ELECTRIC VEHICLES (ICSEEV-2020) during **8th – 10th January 2020**. Paper submission on or before **Sept 15, 2019**, at <https://cmt3.research.microsoft.com/ICSEEV2020>.
- N.B.K.R. Institute of Science & Technology, Vidyanagar, SPSR Nellore Dist, Andhra Pradesh is conducting an "International Conference on Advances in Material Science and Mechanical Engineering" (ICAMSME 2020) during **7th to 9th of Feb, 2020**. Paper submission by **Sept 15,2019**. Conf website: www.icamsme.nbkrist.org
- SSN Research Centre, SSN Institutions in association with Elavennil Science Association, Indian Science and Technology Association (ISTA), Indian Association for Crystal Growth (IACG) and Indian Spectrophysics Association (ISPA) organizing the "3rd International Conference on Recent Trends in Applied Science and Technology (ICRTAST-2019) "பயனுறு அறிவியல் மற்றும் தொழில்நுட்பத்தின் அண்மைப் போக்கு குறித்த முன்றாவது பன்னாட்டுக் கருத்தரங்கு" in Tamil language at SSN Research Centre, SSN Institutions, Chennai during **19-21st September 2019**.
- PPG Institute of Technology, Coimbatore, is organizing [AIP International Conference on Inventive Material Science Applications \[ICIMA 2019\]](#), during **September 25-26, 2019**.
- The Department of Chemical Engineering of SSNCE is organizing the First International Conference on Recent Trends in "Clean Technologies for Sustainable Environment (CTSE-19) during **26-27 September 2019**. Details in conference website- www.cleantechssn.com.

October 2019

- SRM Institute of Science and Technology (formerly known as "SRM University"), is organizing the 3rd International Conference on Advances in Mechanical Engineering during **February 24-29, 2020**. Registration Rs.6000 for students and Rs.9,000 for faculty. Abstract submission by **October 15,2019**. Details at www.srmuniv.ac.in/icame-2020

November 2019

- The Department of Mechanical Engineering of National Institute of Technology, Tiruchirappalli (NIT-T), will be organizing an International Mechanical Engineering Congress (IMEC) – 2019 during **29th Nov – 1st Dec 2019**.

December 2019

- Department of Mechanical Engineering of the Indian Institute of Science (IISc) Bangalore, is conducting The International Conference on Industrial Tribology during 1-4 December 2019. Complete details of the event at <http://tribologyindia.org/>.
- 64th Congress of Indian Society of Theoretical and Applied Mechanics (ISTAM -2019) will be jointly organised by School of Mechanical Sciences and School of Basic Sciences (Mathematics), IIT Bhubaneswar during the period **9th-12th December, 2019**.
- About ISTAM: <https://istam.iitkgp.ac.in/#/pages/home>
About IIT Bhubaneswar: <http://www.iitbbs.ac.in/istam/>
- Indian Institute of Technology (IIT) Bombay, is organizing the 7th International Conference on Advances in Energy Research (ICAER). The conference will be held from **10th to 12th December 2019** at VMCC, IIT Bombay.
Website- <http://www.ese.iitb.ac.in/icaer2019/conference.html#content1-1g>
- Sardar Vallabhbhai National Institute of Technology (S.V.N.I.T.), Surat, Gujarat, is organizing the 5th International Conference on Industrial Engineering (ICIE 2019) during **December 12-14, 2019**. Details at <http://icie2019.com>

January 2020

- 9th International Conference on Fracture of Polymers, Composites and Adhesives **6-10 September 2020** | Eurotel Victoria, Les Diablerets, Switzerland.
Abstract Submission by **17th Jan 2020**
Details at <https://www.elsevier.com/events/conferences/esistc4conference/about>

August 2019

Challenges/Contests

- SAENIS presents **Efficycle Concept Design Challenge**, an intercollegiate design competition for Undergraduate & Postgraduate students. Students get a chance to actually design a real hybrid vehicle and provide a green mobility solution which is cost effective and technology proven. **Fabrication of the real vehicle is not included in this challenge.**
Details at: <https://www.effi.saenis.org/pdf/efficycleconceptdesignchallengeeventguidelines.pdf>

Last date to apply **August 3, 2019. (Shared by Mr. B Jayakishan)**

- National Design research Forum has announced a Student Design Competition in fifteen disciplines. Details at <http://ndrf.res.in/doc/formawards.pdf>
Eligibility: Individual students from Pre-final or final year BE and ME.

Last date to apply **August 10, 2019.**

1. Nano Mission Council

The Nano Mission Council, has identified 3 areas as of now in Nano R&D in which proposals are now invited from Institutions that have active research in Nano S&T. The three areas identified are as follows:

- i. Nanotechnology in Agriculture
- ii. Nano for Energy & Environment
- iii. Quantum Materials with exciting Nano-science and novel applications



Dr Muthu Senthil Pandian
SSN Research Centre

Nano Mission invites proposals, preferably multi-institutional, multiple PI with One overall Coordinator in each area of the proposal, from Institutions active in research in Nano S&T.

Proposals may be submitted in the format given on the DST website under [online.dst.gov.in](https://onlinedst.gov.in/Projectproposalformat.aspx?Id=Thematic%20Areas%20Nano%20for%20Energy%20and%20Environment). In case of projects for creating Research Infrastructure along with projects, while the projects could be of three years duration, projects for building Research Infrastructure could be for 5 years.

Last date for submission of application: **14 August 2019**.

Website Links:

- <https://onlinedst.gov.in/Projectproposalformat.aspx?Id=Thematic%20Areas%20Nano%20for%20Energy%20and%20Environment>
- <https://onlinedst.gov.in/Projectproposalformat.aspx?Id=Thematic+Areas+Nano+for+Energy+and+Environment>
- <https://onlinedst.gov.in/Projectproposalformat.aspx?Id=Thematic+Areas+Nano+for+Energy+and+Environment>

2.TNSCST - Applications are invited for

- (i) Young Scientist Fellowship Scheme (YSFS-2019)
- (ii) Dissemination of Innovative Technology (DIT) Scheme - 2019

(i) Young Scientist Fellowship Scheme (YSFS-2019)

Aim of the Scheme : To encourage young scientists and researchers below 40 years of age to get themselves acquainted with the latest techniques in research and development

Amount of Fellowship : Rs.10000/- P.M

Period of Fellowship : 2 to 6 months

Eligibility : The applicant

- 1. should have a Masters degree (or) Ph.D Degree in the respective disciplines
- 2. should be below 40 years of age
- 3. should hold a regular position in the parent institution
- 4. should avail leave with pay from the parent institution during the period of fellowship

Venue of the fellowship : Should be a centre of excellence located outside Tamilnadu. The applicant should obtain the consent from the Parent and Host Institution for the training and enclose the same with application.

Travel assistance : To and fro from the parent institution to the host institution by shortest route by rail (II AC).

Last date for filing filled up application : **05.09.2019**

Website Links:

- <http://www.tanscst.nic.in/pdf/YSFSC1920.pdf>
- <http://www.tanscst.nic.in/>

(ii) Dissemination of Innovative Technology (DIT) Scheme - 2019

Under this scheme, innovative technologies are to be disseminated by educational / research institutions of our state through training / workshop / awareness program for the benefit of target groups such as farmers, fishermen & women, self help group members and others. A sum of Rs.50,000/- may be provided for one programme with beneficiaries of about 50 to 100 with a duration of 3-5 days. Two copies of proposals may be submitted to “**The Member Secretary, Tamilnadu State Council for Science and Technology, DOTE Campus, Chennai - 600025**” **on or before 16.08.2019.**

Website Links:

<http://www.tanscst.nic.in/pdf/DITC1920.pdf>
<http://www.tanscst.nic.in/>

3. Student Projects Scheme

Tamilnadu State Council for Science and Technology has been implementing Student Projects Scheme in order to harness the talent and potential available with students for the benefit of our State. Under this scheme final year **UG students (Engineering) / PG Science Students / PG professional Students** who have dissertation work in their curriculum may apply. Financial support up to a maximum of **Rs.10,000/-** will be provided to each project.

Those who want to apply under this scheme are requested to read the instructions carefully and apply only in the prescribed format. The format and instructions in which the proposals are to be submitted is available in the Council's website. (www.tanscst.nic.in).

Two copies of proposals complete in all aspects are to be submitted through proper channel to **The Member Secretary, Tamilnadu State Council for Science and Technology, DOTE Campus, Chennai-600025 on or before 31 AUGUST 2019, 5.00PM.**

Website Links:

<http://www.tanscst.nic.in/pdf/SPSC1920.pdf>
<http://www.tanscst.nic.in/>

4. DST - call for Proposals for Science Technology and Innovation (STI) Hubs for Development of Scheduled Caste (SC) and Scheduled Tribe (ST) Communities

The Department of Science and Technology invites proposals for establishment of Science Technology and Innovation (STI) Hubs to develop, nurture and ensure the development, improvement, and delivery of appropriate and relevant S&T approaches for Creation of Sustainable Livelihoods and enhancing the Quality of Life of the Scheduled Caste and Scheduled Tribe population in the country. The last date for submission of online proposals is **31st August 2019.**

<http://www.dst.gov.in/callforproposals/call-proposals-science-technology-and-innovation-sti-hubs-development-scheduled>

5. DST - the India-Japan Cooperative Science Programme (IJCSP)

The Department of Science and Technology (DST), Ministry of Science & Technology, Government of India, New Delhi and the Japan Society for the Promotion of Science (JSPS) conduct the India-Japan Cooperative Science Programme (IJCSP) to promote bilateral scientific collaboration between Indian and Japanese scientists. Applications are invited from eligible Indian researchers /scientists to submit proposals for Joint ResearchProjects and Joint Workshops/Seminars under IJCSP. The deadline for the submission of proposals is **4th September, 2019.**

6.DST - Call for Joint Project Proposals under South Africa / India Joint Science and Technology Research Collaboration - 2019

The Indian researchers can download the proposal formats from websites www.dst.gov.in/www.onlinedst.gov.in and should submit completed application form and all relevant information. Apply by Sept 23. <http://www.iuac.res.in/>

Inspiring Life Stories

The Best Things In Life Really Are Free

Reproduced from <https://www.sunnyskyz.com/feel-good-story/3261/The-best-things-in-life-really-are-free>

I saw the most beautiful thing ever one morning. It was early with a slight frost on the ground, and I was walking on dewy grass down to the horse paddocks - my mind on the days chores.

Suddenly a blazing laser flash erupted straight from the ground about 15 feet in front of me, and shot up into the sky. It was so brilliant, clear and clean, it literally topped me in my tracks. I thought the only thing that could make such a dazzling flash must be a diamond - maybe someone had lost some kind of jewelry. Or some kind of weird reverse lightning strike - so bright. I waited to see if it repeated but it didn't.

I walked slowly towards it. There was nothing to see. I stared down at the grass, searching for a glint of gold or some kind of metal. Nothing. So I dropped down really close and there it was!

A tiny - no bigger than a dime - trapdoor spider's web, delicately hanging between blades of grass, glistening with miniature drops of dew, flashing and twinkling in a myriad of colors. The rising sun had caught the exact angle of the dewdrops, and that laser light had exploded up into the heavens.

It was incredible and stunning, such a powerful flash from something so small and fragile, and I would have crushed it beneath my feet. It was as though the unseen world was giving me a heads-up. Hello! Look what's around you. I've never forgotten that moment.

So I say to everyone- take some time to notice the miracle of nature that most of us never even see. So much beauty all around us if we would only take the time. Look at the brilliant colors and intricate patterns of tiny flowers that cover playing fields - we walk all over them without a second glance. Watch a bee harvesting pollen. So busy with a purpose. Tiny ants going about their day. Birds singing and fluffing their wings, being bossy. Busy iridescent beetles and glossy lizards. The subtle shading and colors of practically any flower on earth are breathtaking and all natural - if we would only notice. It doesn't have to be a garden. It can even be a weed flowering in the pavement crack.

So I say - take the time and each day discover from nature one secret beautiful thing that you can keep in your heart. And get your children to do the same. Take a picture. it's what life really consists of. And it's free.

Corporate Wisdom 66

As human beings we want to live in Bungalows or good duplex flats or large well-furnished apartments. Step back and think for a while - We don't live in bungalows, duplexes or flats. **In fact the truth is we all live in our minds.**

Yes, that's our permanent residence and the real residence. Believe me there are no constraints of square-feet, size, lay out etc. there. It's a vast space and it depends on the space we think of, with unlimited area.

No matter how well-organized our rooms, balconies, garages and verandas are, life is good only when things are sorted there – in our mind.



And that's where we keep things messy –

- Jealousy in our outlook.
- Non-acceptance of the reality
- Regrets piling up in one corner.
- Expectations stuffed in a closet.
- Secrets under the carpet.
- Worries littered everywhere.
- Comparisons spilt on the table.
- Complexes leaking from an old bottle, and
- Grudges stinking in a box.

Be aware. For this ‘Real home’ of yours, you can’t outsource housekeeping. You got to do it yourself.

When we throw out physical clutter, we are sure to clear our minds, but how do we clear our souls? When we throw out mental clutters, we clear our souls

Human is what his or her MIND is

#WishingMostAndMore

Have a great day & Wonderful weekend

R.Ramakrishnan
Group Chairman Office

This issue has one annexure on
“Highlights of Higher Education “
proposed in the
National Education Policy Draft 2019

This edition of Aspire was compiled by Vinaya Krishna, with support from Saran Prasanth, Mohitha U M, Anupa Sri and Akshay Kanna.



Vinaya Krishna



Saran Prasanth



Akshay Kanna



Anupa Sri



Mohitha U.M