SPIE. STUDENT CHAPTER
VELLORE INSTITUTE OF TECHNOLOGY, CHENNAI

ANNUAL REPORT
2019-20
Annual Newsletter 2019-20

SPIE is an international society advancing an interdisciplinary approach to the science and application of Light Technology. SPIE strives to inculcate an International Scientific Community through inciting endeavors like an opportunity to attend SPIE meetings, a digital library, SPIE awards for recognition, etc. This paves way for ambitious Chapters to organize events that offer professional development opportunities.

SPIE student chapter VIT Chennai was formed in the year 2015 as a celebration of light and technology in this campus. We as a team are very excited to be leading the SPIE Student Chapter at VIT Chennai and wish to share with you some of the events that we successfully organized in the previous year. Throughout the year, we had a number of information sessions, allowing you to create fun conversations and a lot of information-sharing about the different emerging fields, particularly in Optics.

The SPIE Student chapter members during an industrial visit
MESSAGE

Optics is one of oldest branch of physical science which has been initiated from ancient Greeks like Aristophanes, Democritus, Aristotle, Euclide and Ptolemy. The legacy was carried by Bacon, Franklin, Keppler, Airy who mostly performs the experiments on lenses. Later on Galileo, Newton, Schmidt and many contemporaries studied the observational aspects through telescope. Although Newton started corpuscular theory it was formally shaped to ray optics by Snell, Descartes, Fermat, Hamilton and Euler. The shift from ray optics to wave optics came in the early 19th century by Young, Fresnel, Foucault, Laplace, Poisson, Fourier, Fizeau and Doppler. The modern era begins with Maxwell who bridges electromagnetic theory with optics. The interplay between optics and atomic physics was prominently studied by Fraunhofer leading through the work by Planck energy quantization to Einstein's photoelectric effect. Later experimentation has confirmed this duality in the nature of light. Now, we are in the 21st century which is as much as relying on photonics. Although, we could not see the entire electromagnetic spectrum, visible and invisible light waves are a part of our everyday life. Optics and photonics have reached a critical level of importance for the development of our societies and are present in a great many aspects of our technological progress, from communication systems supporting the Internet to the most modern techniques in medicine.

The usage of photonic technology is everywhere which let to global village; therefore, it is appropriate time to celebrate the "International Year of Light” as proclaimed by United Nations Educational, Scientific and Cultural Organization (UNESCO). The International Year of Light is a global initiative which will highlight to the citizens of the world the importance of light and optical technologies in their lives, for their futures, and for the development of society. It is a unique opportunity to inspire, educate, and connect on a global scale. We are very much delighted to welcome you all to the one day workshop on Advanced Optics & Photonics for Science and Engineering Applications which is organized by the SPIE student chapter VIT University, Chennai in association with "International Year of Light 2015”. The SPIE student chapter at VIT University Chennai has been official formulated during June 2015. We are conducting and organizing this workshop with the consistent encouragement and support from SPIE organization with the help of active and dynamic young student members. During the workshop the eminent speakers will cover overall aspects of light properties in terms of physics and engineering point of view. The information presented herein should help to open up new avenues for the undergraduate and postgraduate students and provide growers with new ideas to help them improve their knowledge. We sincerely hope that a large number of students would be also benefitted.

Dr. R. Navamathavan  
Faculty Advisor  
SPIE Student Chapter  
VIT Chennai

Dr. Sanjit Das  
Co-Faculty Advisor  
SPIE Student Chapter  
VIT Chennai

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Chapter Grant from SPIE
Year 2015-16 - $500 USD
Year 2016-17 - $1550 USD
Year 2017-18 - $500 USD (Awarded for best Women in Optics Seminar amongst SPIE Chapters worldwide)
Year 2017-18 - $750 USD
Year 2017-18 - $5000 USD (Awarded to Mr. Rishabh Raj outstanding contribution in the field of Optics and Photonics)
Year 2018-19 - $700 USD
Year 2019-20 - $1100 USD

Travel Grant from SPIE
Year 2016-17 - Ms Sonika Oberoi - Travel to USA
Year 2017-18 - Ms Ashita Kawatra - Travel to USA
Year 2017-18 - Ms Subhasree S - Travel to USA
Year 2018-19 - Mr Rishabh Raj - Travel to USA
Year 2019-20 - Mr Shubham Thakur - Travel to USA

All over the world, SPIE strives to provide Chapter Members with conference exposure. Each year, Chapter officers have an opportunity to attend an SPIE meeting with special assistance from the Society.
This Grant Included:
- Grant to cover travel/food/lodging
- One conference fee waiver
- Full waiver of the Student Registration Fee

Chapter resources Status
Activity Grant
Optics Outreach Kit
Visiting Lecturer
Officer Travel Grant
Annual Curtain Raiser

23rd August 2019

SPIE Student Chapter takes conducted its CURTAIN RAISER which aimed to encourage the students to begin their involvement in the SPIE Society in their student years which can help them to launch careers in exciting and evolving disciplines of Optics and will open doors develop the talents, interests and passion among the peers. For the past two years we have been successfully organizing various informative sessions, allowing fun conversations and a lot of information-sharing about different emerging fields, particularly in Optics, to enhance the theoretical knowledge and Intellectual personality development among the students.

This Chapter makes you a part of a dynamic global network of students working towards Optics & Photonics programs. This paves way for you to organize events that offer professional development opportunities amongst the peers. Our chapter strives to for them to communicate with established professionals working in the field of optics, photonics and related disciplines. SPIE is an international society advancing an interdisciplinary approach to the science and application of Light Technology. SPIE Student Membership is your gateway to a promising career with the Optics industry.

Photograph taken during the curtain raiser

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The trip began at 9:50 from the MGR statue circle, comprising of the SPIE members and faculty advisors. The trip had its first stop at the camera museum, which housed over 2200 cameras of various time periods showcased for display. The oldest camera in the collection was from 1840’s, and the museum featured various bellow cameras of large sizes. The museum offered various interesting showpieces, featuring various models of Polaroid’s, SLRs, DSLRs, and Digital Cameras, and brands like Leica, Minolta, Kodak, etc. It was a rather fascinating experience, getting exposed to so much photography history.

The session proceeded with the team heading next to Mayajaal, ECR, for the most interesting laser tag session. The group broke down to two batches for a session of the game, and it was a delightful experience. The team then proceeded to have lunch together, and headed back to campus by 2:30 pm. In a nutshell, the annual IV trip was an interesting and enjoyable experience, each member’s presence adding to the zeal of the student chapter.

FEW STILLS FROM THE VISIT

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LASER TAG SESSION IN G SECTOR
MAAYAJAL

13th January 2019

The laser tag session was planned along with the Annual Industrial visit for SPIE student chapter. After the interesting camera museum visit, the team headed next to Mayajaal, ECR, for the more interesting laser tag session. The group broke down to two batches for a session of the game. Each session accommodated 2 teams of 6 members each, and each session lasted for 15 minutes. The session was a delightful experience, with each member scoring “kills” for the team. Points for designated for each shot you score and a point penalty each time you get shot. The team then proceeded to have lunch together, and headed back to campus by 2:30 pm.

SPIE Members enjoying the session of laser tag
We started with student seminar keeping in mind about the students who have stage fear and members who really need to practice their presentation skills. Further, what better than creating a ecosystem as such wherein one can share information as well as practice his/her presentation skills. The student seminar commenced with Sanjit Das delivering an interactive session on optics and explained about the different kinds of lenses used in cameras.

Further, he even helped students by clearing their doubts and made sure everyone gets to know the science behind optics and lenses. The second session was delivered by our own chapter member Abhishek Deswal wherein he introduced students more about SPIE and its conferences. He also talked about the famous physicist with Dr. Manijeh R and his topics of interest. The session was very interactive as it involved students learning about new and different kinds of lenses.
This session started with our own faculty advisor, Dr. R Navamathavan delivering a talk on quantum entanglement. The talk comprised of various topics. There was a brief introduction which talked about what quantum numbers essentially meant. This was followed by the meaning of quantum entanglement. There was a brief discussion on the classical mechanics and how it was different from the quantum mechanics. Then the talk comprised of quantum computing, bits, cubits and how useful it is.

The talk ended with what prospects quantum computing has and how it could be explored. The second half of the session had the speech by Sagarika Rauniar, student member of the chapter. She gave a very informative talk on what human psychology is and how it is assumed. She elaborated on how the theories of psychology were devised and how they were and are applicable to the present society.
SPIE Career Fair x LinkedIn MTV Get A Job 21st February 2019

SPIE Student Chapter hosted its first of a kind, SPIE Career Fair in association with LinkedIn and MTV under their flagship nation-wide event called LinkedIn MTV Get A Job. This is the 5th season of the popular TV show which they hosted in Chennai at our campus. We all have to go through that magical phase in life when our youth is at its final stretch and a brave, new world called ‘adulthood’ awaits us. And at the onset of adulthood are internships! While some are highly rewarding, others revolve around the central theme of fetching coffee for your immediate seniors and lighting up lavender scented incense in the CEO’s cabin every morning. And then, there are the kind of internships that are up for grabs on "LinkedIn MTV Get a Job". The kind that all but guarantee an illustrious career! If you don’t know what Get a Job is, it’s the popular show that helps student kick-start their professional journey and brings them one step closer to the good life. And this year, Get a Job is all set to help a handful of promising aspirants land internships with literally the best of the best. Aspirants need to apply through their LinkedIn profile. (A short video was created by LinkedIn to help its young users in creating the profile). Aspirants have to send a short video highlighting as to why they are best suited for this job profile. Next round will be Group Discussion and Skill Test for shortlisted 4-5 candidates. 2 candidates amongst them will get interview opportunity. 1 candidate will finally be selected.

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Student Seminar Series 3

10th March 2019

A student seminar session was conducted by the SPIE student chapter regarding the working of microscopes and other optical instruments, presented by Ms. Ragashree. She thoroughly explained the working of a simple and compound microscope, the components, and their resolutions. The session also involved exploring the new methods of optical instruments, including laser microscopy and electron microscopes. The session was both engaging and informative, and the students actively participated, interacting with the speaker and the crowd.
Your Story Matters with MR. Nikhil Taneja 19th March 2019

Every story matters and our strength lies within our stories. The world divides us but our stories unite us. As part of the Yuvaas Roadshow, Yuvaas is trying to create safe spaces for the youth in campuses, encouraging them to speak out and put together support for all. Nikhil Taneja, a UN Goalkeeper and primarily a story teller, is an entrepreneur, Co-founder and CEO at Yuvaas. He visited VIT Chennai with his team to have a discussion on why our stories matter and how we can tell these stories in our words. The session started off on a light note to keep the atmosphere comfortable and open for all.

Nikhil told the students about his previous creations and productions and why he left the business for good. His stories about his marriage were touching and the base of all his jokes as well. But it gave the students an insight into how certain situations can alter your life forever. Nikhil went on to tell us a few more stories about his travels and how suddenly on the most important day in your seemingly perfect career, it can all fall apart, only to make sense on a later day, at a later time. Nikhil’s stories brought out the storyteller inside us all. His words inspired the students to take up the stage and share their thoughts as well. From the simplest first day at college to the gruelling senior years, memories were shared and as time passed, every person in the room certainly felt a little more comfortable with themselves and the strangers around them, despite the randomness Nikhil and his team brought out handwritten postcards which they had collected over the course of their journey. The deal was, you could only take a card if you write one. And the students participated wholeheartedly. Anonymous or not, we all left a message for another soul on whose cards hoping our words might bring them solace during tough times, just like theirs might bring goodwill our way.

A group picture post event and a Yuvaas member sharing a story.

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Officer travel experience sharing session 25th March 2019

Our chapter member, Mr Shubham Thakur shared his experience about his visit to the US for Photonics West 2019. This session was very useful to the next year applicants of this opportunity as he explained about the process and tips in this gathering. SPIE Photonics West runs February 2-7, 2019. To support impactful photonics products and innovations, the conference will also host the SPIE Startup Challenge and the Prism Awards. And for those exploring career opportunities, the Job Fair will feature many of the industry's leading companies in search of talented new employees. It features 40 free events spanning five days, and is dedicated to advancing the business of photonics, including the highly popular two-day AR/VR/MR conference.

More than 23,000 people enjoyed a busy, productive SPIE Photonics West 2019 in San Francisco at the premier event for the photonics and laser industries. Attendees came to hear cutting-edge research, find the latest products and services, and network with thousands of other like-minded individuals. These well-attended sessions were open to anyone attending SPIE Photonics West, from the exhibitions to technical conferences (and everything in between). Extra networking in a more relaxed atmosphere offered a great way to stay connected with colleagues or develop new relationships. At its core, Photonics West is about sharing important research and the latest advancements to help move projects and technology into the future. The program supports people doing important work.

A group picture post session
Chennai Railway Museum Visit 18th July 2019

SPIE Student Chapter has always encouraged students from to explore different fields of interest despite their branch or stream. As part of our club activities for the club members visited the Chennai Railway Museum in Villivakkam. The museum facilities were very well managed and the staff was extremely helpful. It housed a variety of different parts and valuables that were significant to the numerous models that have appeared over the years. It documented the history of the Indian Railways since its inception. The exhibits also showcased the growth of the railways during the period of the British Raj. There were pictures depicting all the foreign dignitaries that have visited the museum in the past. All special trains and engines that have been employed by the railways also had a special section which was very interesting especially for all the mechanical engineers on the trip. The Chennai Railway Museum has placed a variety of real life replicas of different models of train cars like Accident Relief Cars, Coal based cars, electric engines, tow cars etc.
3D Printing Workshop 10th September 2019

SPIE conducted a 3D printing workshop for student to familiarise with the brand new technology of 3D manufacturing, and habituated them to the operations and construction of 3D artifacts. Later a workshop was conducted on how to design and render your own 3D models using pre-existing software that the students use in college, and to make their own 3D objects using the designed files. It was indeed a fresh event, to provide students with such a hands-on experience on 3D designing and manufacturing.

Top: Lecturer taking session on 3D Printing  
Left: 3D object printed by students in workshop
Black Hole Seminar

A seminar on the science and principle of black holes were conducted by the students and faculty members of the SPIE student chapter in VIT Chennai. The session was conducted by Dr. Sanjit Das, who explained the theory and principles behind the origin of a black hole. He also explained the formation of black holes from decaying stars, and the life cycle of interplanetary objects. The session was reviewed to be very immersive, with the discussion extending the myths regarding black holes, and their interpretations in popular media. The discussion was further extended to the properties of light emission around black holes, and how their special field of gravity affects transmission of the visual spectra.

Photographs taken during the session

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Stargazing Session
22\textsuperscript{nd} July 2019

The SPIE student chapter of VIT Chennai conducted a star gazing session for the members of the chapter. The session involved observing the serene beauty of the night sky, extending beyond the rudimentary concept of astrology, and star formations. The session speaker present was HS Mani, adjunct faculty in Chennai Mathematical Institute. He was a faculty member in IIT Kanpur till 1992, and in Allahabad till 2001. He helped us observe the constellations, and the journey of the 12 constellations, and their applications in navigation and their influence in the traditional life of farmers, allowing them to plan ahead their routines for sowing seeds and harvesting. The discussion was further led on to the operation of long range telescopes and their working. The session was very interactive, and led to an out-of-the-box experience for the members.

Photographs taken during the session
School Visit Session 1  

9th October 2019

The SPIE student chapter conducted a school visit in Cresent School, Vandalur, and the students from the same, belonging to 6-8 grades, actively involved in the educational session organized by the student chapter. The session involved a class on the fundamentals of optics, rules of light, and principles of reflection and refraction. It was a very interactive session, involving students and answering their doubts on basic day-to-day phenomena associated with light and light transmission. The session was indeed enlightening for the students, who had been just familiar to the rudimentary elements of science, to get exposed to a very fundamental study of optics.

Photographs during and after the School visit Session
*organized under SPIE education outreach grant 2

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School Visit Session 2

11th October 2019

The SPIE student chapter conducted a school visit in St Josephs School, Chennai and the students from the same, belonging to 6-9 grades, were involved in the educational session organized by the student chapter. The session involved a class on the different kinds of basic lenses, and their working principles, and image-object relationships. It also involved the study of lenses used in spectacles, for treating different cases of eye-sight issues, and how these lenses compensate for the same. The study went on to a detailed study on bifocals, and various types of eye-sight issues, treatments, and involvements of optics on the same. the session was very interactive and immersive, adding to the spirit of the organizing team and outreach coordinators.

Photographs during and after the School visit Session

*organized under SPIE education outreach grant 2
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**Complimentary SPIE online courses**
- Subscription to one of the SPIE online journals
- Subscription to **SPIE Professional**, the quarterly Membership SPIE magazine
- eNewsletters that keep you up-to-date on activities.
- Reduced registration fees at SPIE conferences

**Benefits**
- Eligible for **travel assistance to attend SPIE events**
- Receive **50% off all conference educational courses**
- Networking events at SPIE conferences designed for students
- Eligibility for SPIE Scholarships and Grants
- Free **professional development webcasts**

We as a team are very excited to be leading the SPIE Student at VIT Chennai and wish to share with you some of the events that we successfully organized in last two years. Through out the year, we had a number of information sessions, allowing you to create fun conversations and a lot of information-sharing about the different emerging fields, particularly in Optics. We have had Outreach programs, Laser Tag events, four Workshops and a Value Added Programme on Roadmap to Optics and Photonics.

**JOIN US!**
Upcoming events for Winter Semester 2020-21
- Meet your mentor- New Sessions
- Industrial Visits
- SPIE Career fair and Internship Drive
- Photonics day
- Observatory trip
- SPIE Fest

Follow us to stay updated with our upcoming event and news at the below mentioned handles

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