SPIE. STUDENT CHAPTER

Malaviya National Institute of Technology, Jaipur India

First Annual Report

SPIE MNIT Jaipur Chapter

September 2016 – August-2017

Malaviya National Institute of Technology, Jaipur India Chapter

Contents

Chapter Officers

Advisor:	Vijay Janyani
President:	Amit Kumar Garg
Vice President:	Ashish Kumar
Secretary:	Abhinav Bhatnagar
Treasurer:	Usha Choudhary

Current Student Members

S.No	Name
1	Dipikaben Baria
2	Abhinav Bhatnagar
3	Deepender Kant Chhabra
4	Anshu Choudhary
5	Usha Choudhary
6	Amit Kumar Garg
7	Zaineb Gharsallah
8	Nikhil Deep Gupta
9	Alka Jakhar
10	Anil Kumar Jangir
11	Dimpal Janu
12	Ashish Kumar
13	Mandvi Mandvi
14	Priya Pandey
15	Saurabh Sarkar
16	Bipin Saw
17	Shanky Saxena
18	Juned Siddiqui

1. Chapter Inagural Activity

- SPIE Student Chapter activity of the year started with the formal inauguration of the chapter by Prof. UdayKumar R Yaragatti, Director, Malaviya National Institute of Technology, Jaipur (Rajasthan) on November 24th, 2016 in National Knowledge Network hall at MNIT, Jaipur.
- Dr. Vijay Janyani the advisor of the SPIE student chapter addressed the students about the SPIE, which is the international society of optics and photonics and explained the importance of SPIE Student Membership that it is the gateway to the optics industry and joining the society provides access to resources that will make a difference in student's career.
- The inaugural function was marked by an Invited Inaugural Seminar by Prof. Uros Janez Stanic, Ph.D, Jozef Stefan Institute, Ljubljana, Slovenia, on "Strategy for massive absorption of the ICT solutions to the health care sector".
- Prof. Vishwanath Sinha (academic chairperson E&ICT Academy) and Dr. K.K. Sharma the Head of the Electronics & communication department encouraged the students with their motivational speech and threw light on the science of light, optics and photonics which are the specialized fields of physics and engineering and explained how these technologies are prevalent in almost every aspect of day-to-day life from your computer screen to your cell phone and car headlights, optics and photonics are critical technologies that will continue to grow and enhance people's lives.
- The event was successful with the presence of a large number of audience including the faculty members, Ph.D scholars, M.Tech and B.Tech students. The event was ended with a delightful lunch at Indradhanush Guest House, MNIT, Jaipur

Lamp Lighting Ceremony

Introduction of SPIE Chapter by Dr. Vijay Janyani (Faculty Advisor)

Unveiling of the SPIE Student Chapter by Dr. Udaykumar R Yaragatti (Director, MNIT, Jaipur)

Inaugural speech by Dr. UdayKumar R Yaragatti (Director, MNIT, Jaipur), Prof. Vishwanath Sinha and welcome of Dr. Uros Janez Stanic by Dr. K.K. Sharma (Head of EC Dept. MNIT, Jaipur)

Inaugural Seminar by Dr. Uros Janez Stanic. Displaying the light based ICT health care mobile application and the device for recording real time EKG.

Dr. V. Sinha presenting memento to Dr. Uros Janez Stanic

Group photo of the event

2. Chapter Outreach Activities

2.1. School Visit

- SPIE student chapter organized a visit to a school named Adarsh Vidhya Mandir (AVM) on 29th March 2017 in Jaipur, Rajasthan (INDIA). The sole purpose of this visit is to educate and inspire tomorrow's young scientists, particularly with reference to potential of light based technologies in our daily lives.

- The event started with a short speech by the president of the SPIE student chapter Mr. Amit Garg, introducing the SPIE student chapter and thanked the school Principal for allowing us to educate the students.

- The team demonstrated and taught students from different grades about the various optical terms and phenomena such as sources of light, diffraction, scattering, refraction, reflection, interference, polarization of light, total internal reflection, guiding of light inside fiber, optical lenses, LED, laser and optical communication.

- The team created an interactive environment where students have freedom to interact and had a chance to ask questions and try some of the experiments themselves. All students took keen interest in gaining knowledge and lots of questions were answered by our team. The event was successful and the joy of learning brought to the faces of children was more than palpable. It was the best moment for the entire SPIE student chapter team as spreading education to children can make a big difference in their life which will eventually help in the growth of the country.

Event Photographs

Explaining light bending through concave and convex lens

Explaining diffraction phenomenon to students

Demonstrating polarization, reflection and refraction of light


Demonstrating Total Internal Reflection (TIR) and bending of light through mirror

Question-answer round and distributing prizes to students

Group Photo with school students

2.2. Unnat Bharat Abhiyan Science Fair

- SPIE Student chapter MNIT team participated in the science fair organized by Unnat Bharat Abhiyan MNIT Jaipur to spread the basic knowledge of optics to 05 village's pre-university students.
- As per the vision of Prime Minister Sh. Narendra Modi and the initiatives of MHRD (Ministry of Human Resource Development) to Develop 100 villages as pilot project under Unnat Bharat Abhiyan Scheme, MNIT Jaipur is the only NIT (National Institute of Technology) which is given a mandate to develop 05 villages as a social responsibility to educate village school students. As per the mandate MNIT has identified the 05 villages as Gram Dabh Ka Nalla, Gram Jirrota, Gram Mahal, Gram Bhurthal and Gram Madhorajpura. This Unnat Bharat Abhiyan team of MNIT Jaipur organized a science fair for village school students on February 18, 2017 in the MNIT premises.

- The event started with the ribbon cutting ceremony by the village school students. The Unnat Bharat Abhiyan team then welcomed Prof. Uday Kumar R. Yaragatti, Director, Malaviya National Institute of Technology, Jaipur (Rajasthan). The director visited each stall one by one. The stalls were setup of the students of MNIT, Jaipur of different fields to educate and spread knowledge about various topics to village students.

- SPIE Student chapter team also showed ardour to serve for the noble cause of spreading education by participating in this event. The team demonstrated and taught school students from these villages about the various optical terms and phenomena such as sources of light, diffraction, scattering, refraction, reflection, interference, polarization of light, total internal reflection, guiding of light inside fiber, optical lenses, LED, laser and optical communication.

- The team made an environment where students have freedom to interact and had a chance to try some of the experiments themselves. The event was successful and the joy of learning brought to the faces of children was more than palpable. It was the best moment for the entire SPIE student chapter team as spreading education to children can make a big difference in their life which will eventually help in the growth of the country.

Event Photographs

Director MNIT Jaipur visit to our stall (SPIE) at Unnat Bharat Abhiyan Science Fair

Demonstrating various optical phenomena to village school students

Demonstration of TIR, Refraction and Reflection of light

Dr. Vijay Janyani, the advisor of the SPIE Student Chapter on visit and Group Photograph

SPIE Student Chapter team photograph with village school students and Unnat Bharat Abhiyan Team

3. Student Lecture Series

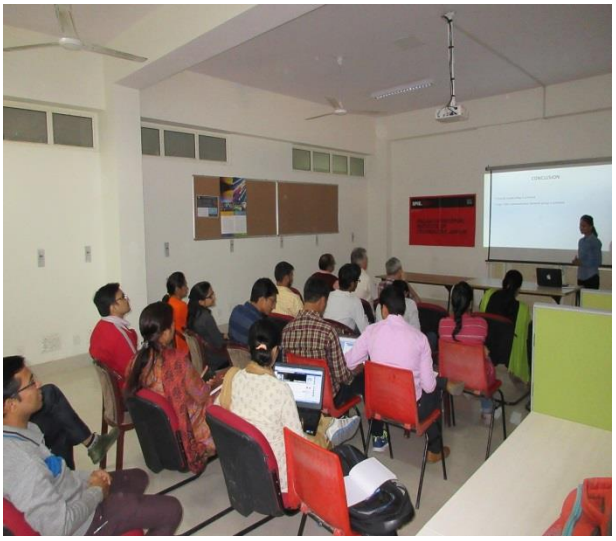
3.1. Lecture Series 1

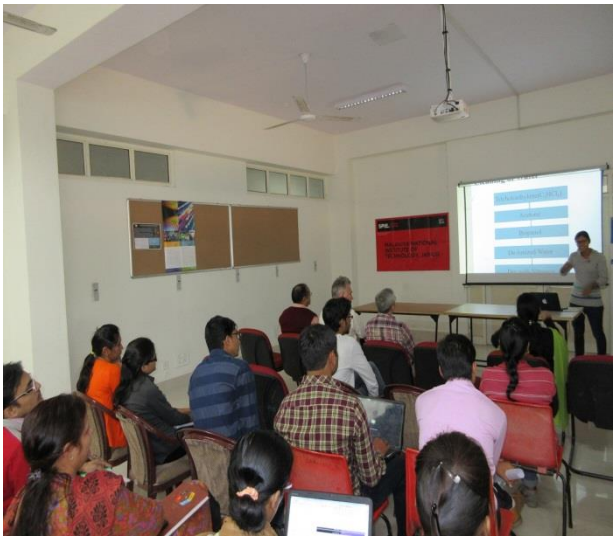
- The SPIE student chapter team organised a SPIE Student lecture series from 5th December to 6th December 2016 in Electronics & Communication department laboratory at MNIT, Jaipur, Rajasthan. The lecture series was followed by an invited guest lecture which was delivered by Prof. Sergii Ubizskii (Professor, Vice Director and Dean of Full High Education of the Institute of Telecommunications, Radio electronics and Electronic Engineering) and Dr. Buryy Oleh Anatolievych (Associate Professor) at Institute of Telecommunications, Radio electronics and Electronic Engineering (ITRE), Lviv Polytechnic National University, UKRAINE.
- A number of research students of our institute took part in student lecture series. Any student of institute, who is interested in sharing a thought, is encouraged by a program called Student Lecture Series. Many interesting topics are discussed during such sessions. A good number of students took part in this event.
- Mr. Amit Garg, the president of the SPIE chapter, MNIT, presented a short welcome speech and briefed about the lectures series and the invited guest lecture to the audience.
- After the student lectures on various leading technology and research topics the SPIE team welcomed the guests Prof. Sergii Ubizskii and Dr. Buryy Oleh Anatolievych to deliver the lecture. They presented their research work on “Investigation of magnetic films for microwave devices, magnetic sensors and MO visualisation” and patent projects of Ukraine such as “Monolithic polarization prism based on bidomain uniaxial crystal” and “Mn based TL/ OSL dosimeter of ionizing radiation”.
- The event was successful with the presence of a large audience including the faculty members, Ph.D scholars, M.Tech and B.Tech students. At the end of the event the vice president of the chapter Mr. Ashish Kumar thanked the guest and extended a vote of thanks to faculties and research students. The event was ended with a high tea.

Event Photographs

Students delivering lecture

Dr. Buryy Oleh Anatolievych and Prof. Sergii Ubezskii and other faculty members





Invited guest lecture by Prof. Sergii Ubezskii and Dr. Buryy Oleh Anatolievych

3.2. Lecture Series 2

- The SPIE student chapter team organised a SPIE student lecture series on 16th March 2017 in Electronics and communication lab at MNIT, Jaipur, Rajasthan. The lecture series was followed by two invited guest lecture which were delivered by Dr. Tawfik Ismail and Dr. Hossam Selmy from Department of Engineering Applications of Laser (NILES), Cairo University, Egypt.
- Dr. Tawfik is currently the Co-PI of two successful research projects funded by the National Telecom Regularity Authority (NTRA) and Information Technology Industry Development Agency (ITIDA). His research interests include optical and wireless networks, IoT, Biomedical telemetry and Optoelectronics.
- Dr. Hossam Selmy is presently engaged with a research project "Modeling and implementation of free space optical transceiver for next generation optical communication applications" under the India-Egypt agreement on Science and Technology Cooperation as Co-PI (2016-2018). His current research interest includes Optical Communication Engineering: Optical Modulation, Optical devices, Free Space Optical Communication.

- The OSA Chapter also joined hands with SPIE Chapter for joint organization of the event. event was successful with the presence of a large audience including the faculty members, Ph.D scholars, M.Tech and B.Tech students. At the end of the event the president of the chapter Mr. Amit Garg thanked the guest and extended a vote of thanks to faculties and research students. The event ended with a high tea.

Event Photographs

Dr. Vijay Janyani (Faculty Advisor) addressing students and welcoming our invited guest Dr. Tawfik Ismail

Dr. Tawfik Ismail delivering the talk


Dr. Tawfik Ismail delivering the talk

Dr. Hossam Selmy delivering the talk


Students delivering lecture


Students delivering lecture

Group photograph

4. Visit of Experts / Invited Talks

A number of renowned experts visited the Chapter under invitation, and shared their expereinces and delivered lectures on light based technologies, their present applications and future prospects. These lectures were primarily organised in a view to ignite the minds of young reseachers and to create awareness about / popularise the acivities of SPIE Student chapter, and also to provide a platform to create a network of researchers and experts. The activities are detailed below:

4.1. Invited Talk on Photonics: Basics and Advances in Material Technology: Prof Y K Vijay

- The SPIE student chapter team organised an invited talk on "Photonics: Basics and Advances in Material Technology" which was delivered by Prof Y K Vijay, President, Vivekananda Global University, Jaipur on 30 Nov 2016 at 3pm (in Prabha Bhawan, II Floor NKN Room), under the banner of SPIE-MNIT Student Chapter. Prof. Y. K. Vijay has wide experience in the area of photonics education, and has served as a Professor, Department of Physics; Director, Centre for Development of Physics Education and Centre for Non-Conventional Energy Resources at University of Rajasthan, Jaipur, India.

- The President of the chapter Mr. Amit Garg briefed about the SPIE chapter and its activies all over the world through power point presentation. It was then followed by the intractive lecture of Prof. Y. K. Vijay. During the lecture Prof. Y. K. Vijay demonstrated the basic optical phenomena such as Total Internal Reflection (TIR), Diffraction, Scattering. He also explained about the defects in semiconductor devices and how to eliminate them. He has also established a solar plant at VGU, Jaipur.

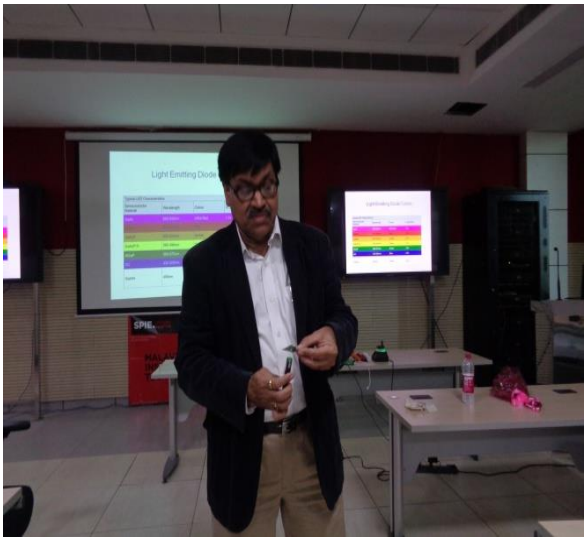
- The event was successful with the presence of a large audience including the faculty members, Ph.D scholars, M.Tech and B.Tech students. At the end of the event the vice president of the chapter Mr. Ashish Kumar thanked the guest and extended a vote of thanks to faculties and research students. The event was ended with a high tea.

Event Photographs

Dr. Vijay Janyani welcoming our guest Prof. Y. K. Vijay

Prof. Y. K. Vijay addressing the students

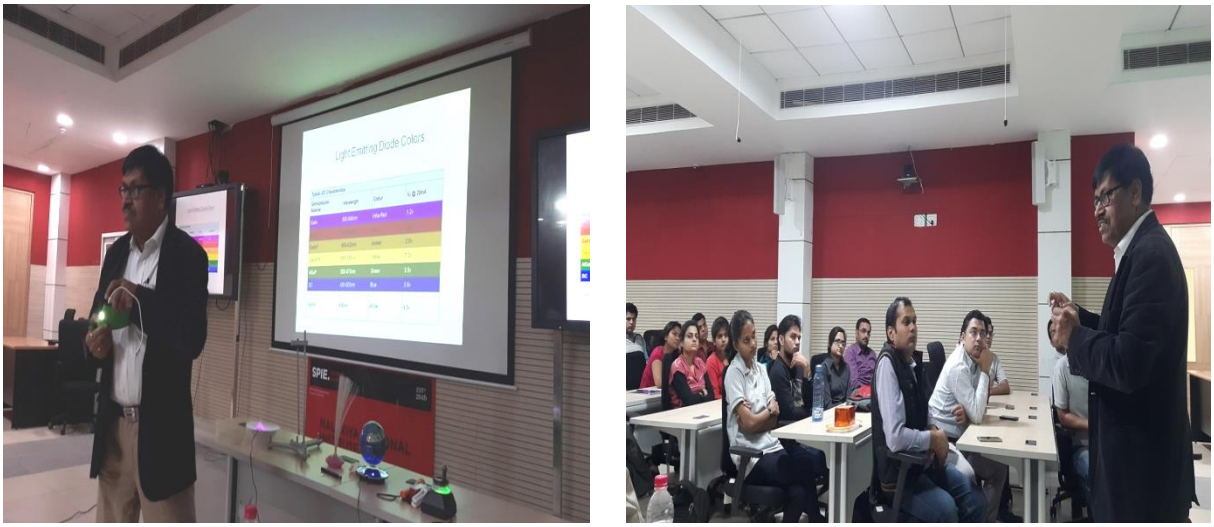
Prof. Y.K. Vijay personally intracting with the students



Demonstration of Diffraction Phenomenon

Prof. Y.K. Vijay explaining plasma phenomenon and students experimenting with the instruments

Demonstration of Total Internal Reflection (TIR) by Prof. Y.K. Vijay



Demonstration of Solar light by Prof. Y. K. Vijay

Group Photograph

4.2. Invited Talk on Solar cells, Materials and Modelling: Dr. Smagul Zh. Karazhanov

- The SPIE student chapter team organised an invited talk on "Solar cells, Materials and Modelling" which was delivered by Dr. Smagul Zh. Karazhanov, Senior Researcher, Department for Solar Energy, Institute for Energy Technology, Kjeller, Norway, on Friday the 10th February 2017 at 3pm (in Prabha Bhawan, II Floor NKN Room), under the banner of SPIE-MNIT Student Chapter. Dr. Smagul Zh. Karazhanov has wide experience in the area of Electrical, structural, and optical properties of materials, photovoltaic technology and smart windows, Photocatalytic processes, Nanoparticles for waste water treatment applications, Theoretical and device modeling for solar cells, and also working as an Associate Professor taking lectures since 2014 at National Research Nuclear University (MEPhI)/ Moscow, Russia.

- Dr. Vijay Janyani the advisor of the SPIE student chapter addressed the students about this event and Dr. Smagul Zh. Karazhanov. The President of the chapter Mr. Amit Garg briefed about the SPIE chapter and its activies all over the world through power point presentation. It was then followed by the intractive lecture of Dr. Smagul Zh, Karazhanov. During the lecture he discussed about the basic facilities for the fabrication such as reactive sputtering, spin coating, CVD (chemical vapour deposition) etc and R&D facilities available at Department for Solar Energy, Institute for Energy Technology, Kjeller, Norway.

- He explained how the various environmental conditions affect the performance of the solar cells. As in Norway the majority of the parts of the country have cold weather thus the losses due to overheating of the solar cells are minimum.

- He discussed the ingot, wafer quality and major natural occurring defects present in the solar materials such as copper, phosphorous, cobalt etc, which lowers the electronic quality of the photovoltaic material. He explained how the defect engineering and surface passivation techniques can be utilized to tune the lifetime of the minority charge carriers. Currently, PERL (passivated emitter rear localized) contact solar cells are being developed at the Institute for Energy Technology, Kjeller, Norway.

- The event was successful with the presence of a large audience including the faculty members, Ph.D scholars, M.Tech and B.Tech students. At the end of the event the president of the chapter Mr. Amit Garg thanked the guest and extended a vote of thanks to faculties and research students. The event was ended with a high tea.

Event Photographs

Dr. Vijay Janyani (Faculty Advisor) addressing students and Mr. Amit Garg (President of the chapter) briefing about the SPIE student chapter at MNIT, Jaipur.

Welcome of Dr. Smagul Zh. Karazhanov by Prof. Vishwanath Sinha (academic chairperson)

Dr. Smagul Zh. Karazhanov delivering the talk

Group Photograph

4.3. Invited Talks on Optical Fiber Technologies, Technical Paper Writing:

- The SPIE student chapter team organised invited talks on "Technical Paper Writing and Optical Fiber Technologies" on 04th July 2017 in Committee room, Electronics and Communication Department at MNIT, Jaipur, Rajasthan. The event started with a brief description of SPIE and welcoming of Invited guests Prof. Anton Bourdine from Samara, Russia and Dr. Rim Cherif from Tunisia.

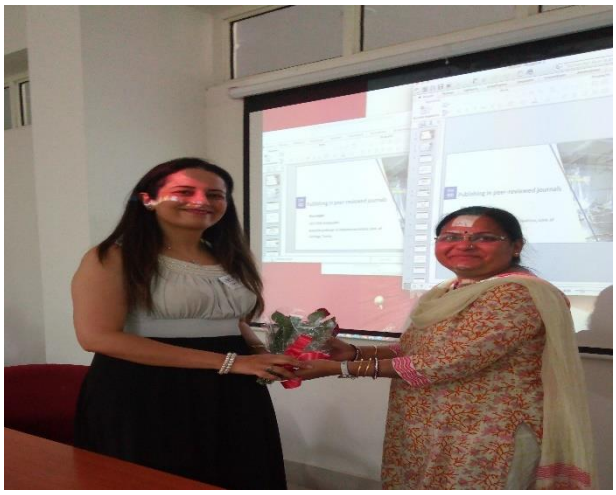
- Prof Bourdine visited under the Visiting Lecturer Program grant of the SPIE Student Chapter. Dr Cherif was invited by the OSA Chapter of MNIT Jaipur.

- Prof. Anton Bourdine is a professor at the Department of Communication Lines of PSUTI and Assistant to the Rector for Innovation. His research interests are concerned with multi- and few-mode effects in optical fibers, laser-based high bit rate data transmission over irregular fiber optic links with multi- and few-mode fibers etc. Anton Bourdine is regular OSA and SPIE member. He is scientific advisor of PSUTI SPIE Student Chapter established in 2015.

- Dr. Rim Cherif is an Associate Professor at the Institut supérieur des études technologiques en communications de Tunis, Tunisia. She works in the areas of optical characterization of photonic crystal fibers and photonic nanowires, supercontinuum generation, ultra-fast and nonlinear optics, optical sensors for all optical new generation networks (h-index 9). She founded the SPIE and OSA Tunisia Student Chapter in 2010 and 2009, respectively.

- The event was very well received by the students, faculty members, Ph.D scholars, M.Tech and B.Tech students. The event was ended with a high tea.

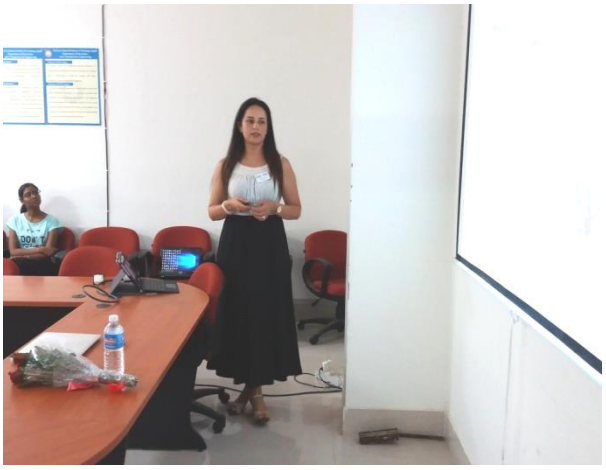
Event Photographs



Welcoming of our invited guests

Prof. Anton Bourdine delivering the talk

Prof. Anton Bourdine delivering the talk

Dr. Rim Cherif delivering the talk


Faculty members and students attending the lecture

Group photograph

4.4. Invited Talk on Demonstration of India's first indigenous focal plane array: Prof. Subhananda Chakrabarti

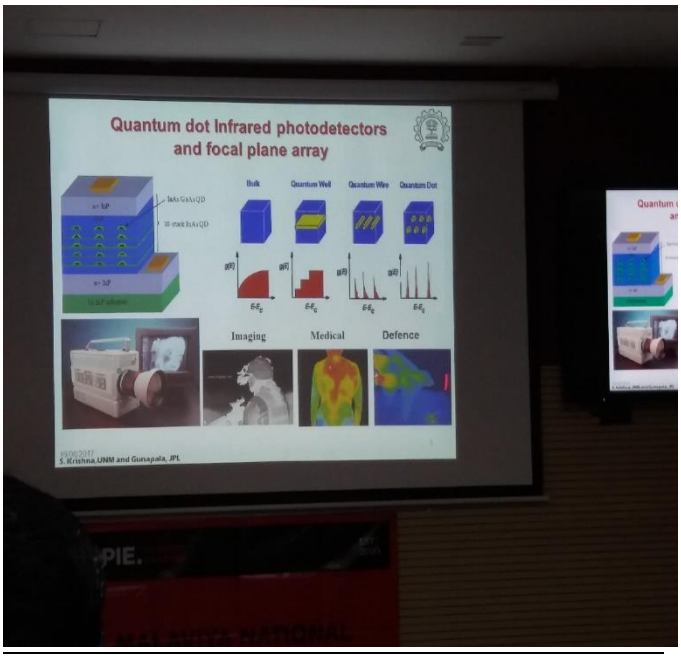
- The SPIE student chapter team organized invited talks on “Demonstration of India's first indigenous focal plane array for thermal imaging applications: A journey from growth of quantum dot based thin films to demonstration of imaging arrays” on 16th Aug 2017 in NKN Room-II (Second Floor Prabha Bhawan) at MNIT, Jaipur, Rajasthan. The event started with a brief description of SPIE and welcoming of Invited guest Prof. Subhananda Chakrabarti, Dept. of Electrical Engineering, Indian Institute of Technology, Bombay by the faculty advisor of SPIE student chapter MNIT
- Prof. Subhananda Chakrabarti has been a Senior Research Fellow with the University of Michigan, Ann Arbor, from 2001 to 2005, a Senior Researcher with Dublin City University, Dublin City, Ireland, from 2005 to 2006, and a Senior Researcher (RA2) with the University of Glasgow, Glasgow, U.K., from 2006 to 2007. He joined as an Assistant Professor in the Department of Electrical Engineering, IIT Bombay, Mumbai, India, in 2007. Presently, he is a Professor in the same department.

Welcoming of our invited guests by Chapter Officers

Prof. Subhananda Chakrabarti delivering the talk


Faculty members and students attending the lecture

Prof. Subhananda Chakrabarti delivering the talk



Prof. Subhananda Chakrabarti delivering the talk

5. Officer Travel Grant Activity

- On behalf of the Board of Directors of SPIE—The International Society for Optics and Photonics, our chapter president Mr. Amit Kumar has been awarded an officer travel grant to attend the SPIE student chapter leadership workshop during SPIE Optical Metrology 24-29 June 2017, in Munich Germany. The award offers the followings:
    1. A student grants of up to $1800 USD toward your travel expenses.
    2. An additional $350 USD to cover lodging expenses for up to 6 nights.
    3. Full waiver of the student registration fee (valued at $160 USD).

- Mr. Garg attended the full day leadership workshop on 24 June 2017 which was instructed by Prof. Jean-luc Doumont. He learned what the qualities a student leader should have to maintain the chapter in a good position.

- He along with other chapter officers (a group of six officers from different chapters across the globe) suggested the qualities that a student leader should have. These qualities may be defined by a single line " A leader should be PLOTMIC"

  P: Persuader
  L: Listener
  O: Organizer
  T: Time manager
  M: Motivator
  I: Initiator
  C: Communicator
  For the same an instant poster was designed as shown below

Team of chapter leaders who consider a leader should be PLOTMIC.

Mr. Amit Garg presenting the poster

Chapter leaders from different chapters discussing on leadership

- Mr. Garg also presented the various chapter activities held in the chapter throughout the year through poster presentation.

Mr. Amit Kumar Garg presenting the SPIE Chapter MNIT activities held throughout the year

- After attending the workshop, Mr. Garg share his experience with other chapter officers and members to grow the chapter exponentially by adopting the new things which are happening in other SPIE chapters.

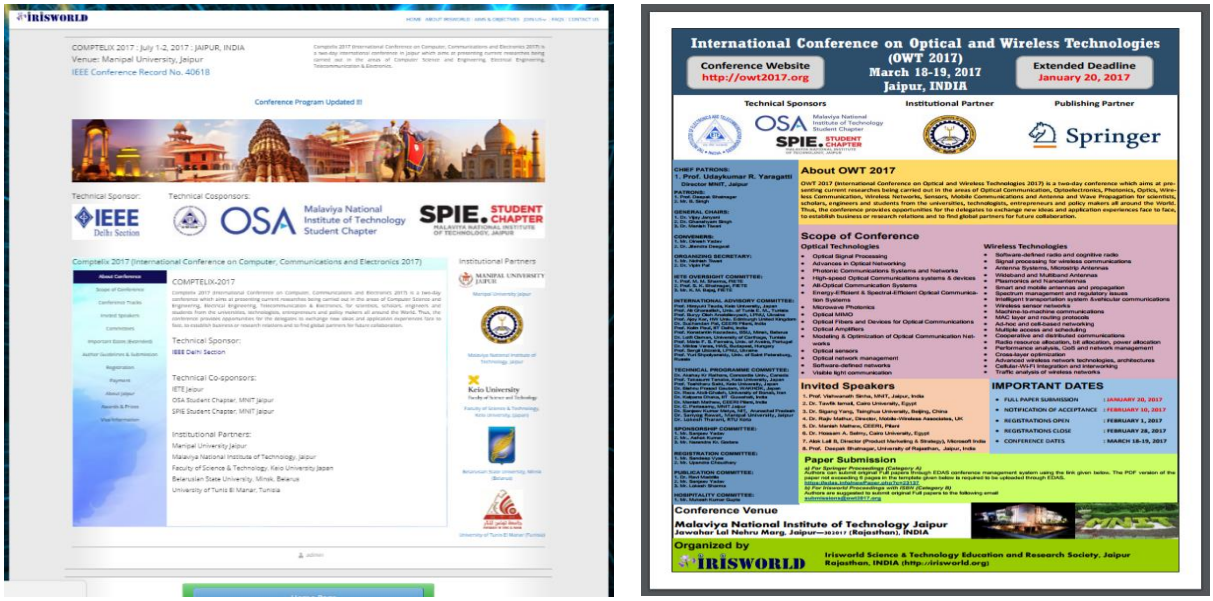
6. Honors/Awards

- President of SPIE student chapter MNIT Jaipur Mr. Amit Kumar Garg has been awarded officer travel grant to attend "Student Chapter Leadership Workshop (SCLW) 2017", during SPIE Optical Metrology, 24 -29 June 2017, Munich, Germany.

7. Conferences and Workshops Attended by the chapter members

- SPIE Optical Metrology, Munich, Germany.
- Photonics 2016, Kanpur, UP, India
- Optical and Wireless Technologies 2017, MNIT Jaipur
- Comptelix-2017, Manipal University Jaipur

In addition to attending the conferences, the SPIE Student Chapter of MNIT Jaipur played a crucial role in organization of two International Conferences held at Jaipur, viz. International Conference on Optical and Wireless Technologies (OWT-2017) and Comptelix-2017 as technical sponsors since a large number of student members and officers of the chapter were involved. These conferences were quite reputable and successful, and the chapter plans to be associated with the next edition of these two conferences to be held in the year 2018 in a similar manner.



A glimpse of website/posters of the two International conferences where SPIE Student Chapter participated actively in the successful organisation of the events

8. Publications

Research publications in international journals during 2016-2017:

- Amit Kumar Garg, Vijay Janyani, "Resilient, bandwidth scalable and energy efficient hybrid PON architecture," Telecommun Syst (2017), Springer. https://doi.org/10.1007/s11235-017-0369-1.
- Amit Kumar Garg, Vijay Janyani, "Adaptive bandwidth mechanism using dual rate OLT for energy efficient WDM–TDM passive optical network," Telecommun Syst (2017), Springer. doi:10.1007/s11235-017-0316-1.
- Amit Kumar Garg, Amresh Ashok Madavi, Vijay Janyani, "Energy efficient flexible hybrid wavelength division multiplexing-time division multiplexing passive optical network with pay as you grow deployment," Opt. Eng. 56(2), 026119 (2017), doi: 10.1117/1.OE.56.2.026119.
- N.D. Gupta and V. Janyani, "Analysis of Light Trapping in thin film GaAs solar cells using 2D Photonic Crystal Structures at front surface", IEEE Journal of Quantum Electronics, vol. 53, issue 2, DOI: 10.1109/JQE.2017.2667638, Apr., 2017.
- N.D. Gupta, V. Janyani and M. Mathew "Light trapping in p-i-n superlattice based InGaN/GaN solar cells using photonic crystal", Optical and Quantum Electronics, Springer, vol. 48, issue 11, pp. 502 (1-17), DOI 10.1007/s11082-016-0775-8, Nov. 2016.
- N.D. Gupta and V. Janyani, "Simulation and analysis of the absorption enhancement in p-i-n InGaN/GaN solar cell using photonic crystal light trapping structures", Optical Engineering, SPIE, vol. 55(10), 107102, Oct., 2016.
- N.D. Gupta and V. Janyani, "Design and Optimization of Efficient Photonic Crystals Diffraction Grating based Light Trapping Structure for GaAs Thin Film Solar Cell", Journal of Nano-electronics and Optoelectronics, American Scientific Publishers (ASP), vol. 11, issue 4, pp. 407-415, 2016.
- N.D. Gupta and V. Janyani, "Optical and electrical simulation studies of GaAs thin film Solar cell using 2D Photonic Crystals", Journal of Nano-electronics and Optoelectronics, ASP, vol. 11, issue 3, pp. 368-376, 2016.
- Sourabh Sahu; Jalil Ali; and Ghanshyam Singh, "Refractive index biosensor using sidewall gratings in dual-slot waveguide," Optics Communication, vol. 402, no. June, pp. 408–412, Nov. 2017.
- Sourabh Sahu; Jalil Ali; Ghanshyam Singh "Optimization of Dual-Slot Waveguide for Refractive Index Biosensor" Accepted to published with Optica Applicata (PSP), vol. 48 issue 1, (2018).
- Soma Kumawat, M. Ravi Kumar, Development of ZCCC for multimedia service using SAC-OCDMA systems, Optical Fiber Technology, 2017.

- Harsh Kumar, Vijay Janyani, Buryy Oleh, Ubizskii Serhij, Sugak Dmytro, and Ghanshyam Singh. "Eight channel Optical Add Drop Multiplexer based on Ring Resonator using LNOI channel waveguides" Journal - Acta Physica Polonica A (communicated).

Conferences

- A.K. Garg, V. Janyani, "Direct ONU Interconnection Schemes Towards Latency-Aware Passive Optical Networks", IEEE International Conference on Computer, Communications and Electronics 2017, 01-02, July. 2017, Manipal University Jaipur, doi.org/10.1109/COMPTELIX.2017.8004022.
- M.B. Dipikaben, A.K. Garg, V. Janyani, "A Flexible Remote-Node Architecture for Energy-Efficient Direct ONU Internetworking in TDM-PON", IEEE International Conference on Computer, Communications and Electronics, 01-02, July. 2017, Manipal University Jaipur, doi.org/10.1109/COMPTELIX.2017.8004012.
- Amit Kumar Garg, Vijay Janyani, "Overall/ Subgroup ONU Intercommunication based on Two Stage Flexible PON Network" , The International Conference on Fiber Optics and Photonics (PHOTONICS 2016), 4-8 December 2016, Indian Institute of Technology, Kanpur, India W4A.1 https://doi.org/10.1364/PHOTONICS.2016.W3A.1.
- Amit Kumar Garg, Vijay Janyani, "WDM-PON Network for Simultaneous Upstream Transmission with ONU Interconnection Capability" , The International Conference on Fiber Optics and Photonics (PHOTONICS 2016), 4-8 December 2016, Indian Institute of Technology, Kanpur, India Tu4A.13 https://doi.org/10.1364/PHOTONICS.2016.Tu4A.13 .
- Anukul Sharma, Amit Kumar Garg and Vijay Janyani, "Performance Analysis of Different PON Standards Up-To 10Gbps for Bidirectional Transmission Employing Square Root Module" , International Conference on Advanced Computing and Intelligent Engineering (ICACIE2016)
- A. Jakhar, M. Mathew, A. Chauhan, K. Singh, V. Janyani and N. D. Gupta, "A Top-Down Approach for Fabrication of Nanorods on GaN based LEDs using Self Assemble Ni", International Conference on Optical & Wireless Technologies (OWT-2017), March, 2017, MNIT, Jaipur (India).
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