About SPIE-IISc Chapter:
Since the inauguration of the SPIE-IISc chapter in August 2010, the chapter has been successful in regularly conducting educational and technical talks and events by eminent speakers. In this report the SPIE-IISc chapter activities for the current year, 2016 are presented.

The Executive Committee is composed of:

<table>
<thead>
<tr>
<th>Name</th>
<th>Officer</th>
<th>Email</th>
<th>Member No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ravi kiran Saripalli</td>
<td>President</td>
<td><a href="mailto:ravikiran_85@hotmail.com">ravikiran_85@hotmail.com</a></td>
<td>3648262</td>
</tr>
<tr>
<td>Rohit Ramakrishnan</td>
<td>Vice President</td>
<td><a href="mailto:rohit.k.ramakrishnan@gmail.com">rohit.k.ramakrishnan@gmail.com</a></td>
<td></td>
</tr>
<tr>
<td>Shefeek Samad</td>
<td>Treasurer</td>
<td><a href="mailto:shafeek.celos@gmail.com">shafeek.celos@gmail.com</a></td>
<td></td>
</tr>
<tr>
<td>Earu Santhu</td>
<td>Secretary</td>
<td><a href="mailto:veerendra.ouce@gmail.com">veerendra.ouce@gmail.com</a></td>
<td></td>
</tr>
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All of them are Research Scholars at Indian Institute of Science (IISc) in Photonics area. New officers will be selected from the new members and informed accordingly.

Faculty Advisor:
Prof T Srinivas (SPIE Membership No.327086)
Associate Professor, ECE Dept, Indian Institute of Science, Bangalore 560012
email: tsrinu@ece.iisc.ernet.in

List of members:

<table>
<thead>
<tr>
<th>Name</th>
<th>Email</th>
<th>Status</th>
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<tbody>
<tr>
<td>Pournami P. N.</td>
<td>Anita Sure (New Member)</td>
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</tr>
<tr>
<td>Nilanjan Chattaraj</td>
<td>Abhay Tiwari (New Member)</td>
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</tr>
<tr>
<td>Sakthi Swarrup Jayabal</td>
<td>George Yumnam (New Member)</td>
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<tr>
<td>Shweta Pant</td>
<td>Arun S (New Member)</td>
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<tr>
<td>Roshan Makkar</td>
<td>B.S. Vikram (New Member)</td>
<td></td>
</tr>
<tr>
<td>Sangana Basava Malipatel</td>
<td>Garima Gupta (New Member)</td>
<td></td>
</tr>
<tr>
<td>Rakesh Manjappa</td>
<td>Radhanshu Sharma (New Member)</td>
<td></td>
</tr>
<tr>
<td>Srivani Padma</td>
<td>Tarun Sharma (New Member)</td>
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<tr>
<td>Prashanth Prasad</td>
<td>Viphretuo Mere (New Member)</td>
<td></td>
</tr>
<tr>
<td>Rajikha Raja</td>
<td>Rohit Ramakrishnan</td>
<td></td>
</tr>
<tr>
<td>Earu Santhu</td>
<td>Shafeek A Samad (New Member)</td>
<td></td>
</tr>
<tr>
<td>Santosh Kumar (Alumni member)</td>
<td>Motiur Rahman Khan</td>
<td></td>
</tr>
<tr>
<td>Krishna M (New Member)</td>
<td>Rasi C.K. (New Member)</td>
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</tr>
<tr>
<td>Sruti Menon (New Member)</td>
<td>Pushpendra Singh (New Member)</td>
<td></td>
</tr>
<tr>
<td>Ravi Saripalli</td>
<td>Shikha Ambastha</td>
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<tr>
<td>Harish Sasikumar</td>
<td>Nirav Singh Dabhi</td>
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<td>Nagendra Singh</td>
<td>Sovan Das</td>
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<tr>
<td>Swathi Suran</td>
<td>Prahlad Epili</td>
<td></td>
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<tr>
<td>Shruthi Ivengar</td>
<td>Bhuvaneshwari Karunakaran</td>
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</table>
The student strength is about 40 student members in IISc. A membership drive to enrol new students was conducted on the 15\textsuperscript{th} of November 2016. With about ten new students interested to join and another few interested in renewing their old SPIE memberships, we can proudly say that our strength has doubled from last year. We plan to enroll more students through promotional events.

**Chapter Activities:**
To increase the involvement of the student members, we have a webpage for the Applied Photonics Initiative, (API) IISc. https://sites.google.com/site/appliedphotoniicsiisc/spie-chapter.

Also a facebook group as “Optics-Groups-IISc” https://www.facebook.com/groups/spieosaiisc/ where all students working in the Optics and Photonics related areas can coordinate and plan meetups etc. Updates on chapter events and other activities are regularly posted online.

A google group has been created. isc-api-students@googlegroups.com

As per the previous report many activities in the areas of Quantum optics, biophotonics and Nonlinear Optics.

Below are the activities conducted and co-ordinated by the SPIE-IISc student chapter.
The members of the chapter have actively contributed their time and effort in the organization and functioning of these activities.

**Technical Activities:**

- **8th Dec 2015**
  Talk on “Fundamental research needs for future Solid State Lighting applications”
  Speaker: Partha S. Dutta, Department of Electrical, Computer and Systems Engineering, Smart Lighting Engineering Research Center, Rensselaer Polytechnic Institute, Troy, New York.
  Venue: Auditorium, New Physical Sciences Building, IISc

- **16\textsuperscript{th} Dec 2015**
  API organized “IEEE WRAP-2015 Workshop on Recent Advances in Photonics” (http://www.ieee.org/conferences_events/conferences/conferencedetails/index.html?Conf_ID=36775), with the support of IISc SPIE students chapter with around 150 student participants from all over the world. Around 20 international speakers participated in the event. The event was a huge success for our API group.

- **17\textsuperscript{th} Dec 2015**
  SPIE Travel lecturer Dr. Radislav Potyralio from GE gave a talk on “Photonic multivariable gas sensors: from bio-inspiration to fabrication and to performance testing”.
  Venue: Faculty Hall, IISc

- **3\textsuperscript{rd} Aug 2016**
  “Semiconductor nanowires for optoelectronic and energy applications”, by Dr. Hoe Tan, The Australian National University, Canberra.
  Venue: Golden Jubilee Seminar Hall, ECE Dept, IISc

- **21\textsuperscript{st} to 23\textsuperscript{rd} Sep 2016**
  API helped organize “IEEE CRALT-2016 Conference on Recent Advances in Lightwave

- **21st Sep 2016**
  Organized “One day Workshop in Quantum and Nonlinear Optics”, in association with OSA IISc students chapter. The list of speakers and their talks are tabulated below:

<table>
<thead>
<tr>
<th>Speaker</th>
<th>Affiliation</th>
<th>Talk Title</th>
</tr>
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<tbody>
<tr>
<td>Prof Chris Phillips</td>
<td>Imperial College of London, UK</td>
<td>Lasers &amp; Lightwave Technology (Light matter interaction)</td>
</tr>
<tr>
<td>Prof. S Rameshesha</td>
<td>Indian Institute of Science, Bangalore, India</td>
<td>Nonlinear Optics Characterization and Performance</td>
</tr>
<tr>
<td>Dr. Andal Narayanan</td>
<td>Raman Research Institute, Bangalore, India</td>
<td>Quantum Photonics: Fundamentals and Basic</td>
</tr>
<tr>
<td>Dr. Anil Shaji</td>
<td>Indian Institute of Science Education and Research, Trivandrum, India</td>
<td>Quantum Photonics: Applications, challenges and Research opportunities</td>
</tr>
</tbody>
</table>

- **22nd Sep 2016**

- **3rd Nov 2016**
  “Multi-Functional Optically Sensitive Metal-Insulator Semiconductor Devices based on SOI Substrates”, by Revathy Padmanabhan, Israel Institute of Technology, Haifa.
  Venue: Golden Jubilee Seminar Hall, ECE Dept, IISc.

- **30th Nov 2016**
  The SPIE-IISc students chapter and the IEEE photonics-Bengaluru chapter jointly organized a half day event: Lectures in Advanced Photonics (LAP)-2016.
  **Schedule:**
  9:30AM to 10:30AM:
  Lecture 1. SPIE visiting lecturer
  Raman Kashyap, Polytechnique Montreal
  "Optical fiber based real time catheter imaging and tracking for biomedical applications."

  10:30AM to 11:30AM:
  Tea with the experts and membership drive

  11:30AM to 12:30PM:
  Lecture 2. IEEE Distinguished Lecturer
  Stewart Aichinson, Univ of Toronto
  "Nonlinear optics in AlGaAs: Past, present and Future prospects."

**Outreach Activities:**

- **5th March 2016**
  “Open Day” ([http://www.iisc.ernet.in/events/openday2016.php](http://www.iisc.ernet.in/events/openday2016.php)) was organized in IISc, where students from local school and colleges visit IISc. A lot of optics and photonics demonstrations were conducted by the SPIE-IISc students chapter. to invoke curiosity and encourage students to appreciate and understand the science behind many common phenomena. In total around thousand students from different schools in and around
Bangalore attended.

- **5th March 2016**
  Prof T Srinivas (our chapter advisor) delivered public outreach talk on “PHOTONICS- The alternative to electronics”, during the open day.

- **4th October 2016**
  On the occasion of the “International Day of the Girl Child”, the SPIE-IISc student chapter members visited several schools around IISc with optics demonstrations. The new optics demo kit was demonstrated to around 300 students (mainly girl students). The students spent the full day playing the LASER Khet game apart from other demos.

- **12th Nov 2016**
  SPIE-IISc student members participated in the “Note Book Drive” ([http://www.iisc.ac.in/outreach/activities/notebook-drive/](http://www.iisc.ac.in/outreach/activities/notebook-drive/)) arranged as part of IISc outreach. Students of IISc visited around 15 schools mainly with children from low income families and donated note books and other stationary items.

Some of the papers presented by the student members at various SPIE events in 2016:

- **Bulk growth, structure, optical properties and laser damage threshold of organic nonlinear optical crystals of Imidazolium L-Ascorbate**
  Ravi Kiran Saripalli, Indian Institute of Science (India); H. L. Bhat, Indian Institute of Science (India)Ctr. for Nano and Soft Matter Sciences (India); Suja Elizabeth, Indian Institute of Science (India)
  Published in Proceedings Volume 9939: Light Manipulating Organic Materials and Devices III

- **Propagation of elastic waves in nanostructures**
  S. Gopalakrishnan, Indian Institute of Science (India)

- **A frequency domain Ritz-method-based spectral finite element methodology for the computation of band structure of the pentamode metamaterials**
  Sushovan Mukherjee, S. Gopalakrishnan, Indian Institute of Science (India)

- **Fiber Bragg grating based tunable sensitivity goniometer**
  Srivani Padma, Sharath Umesh, Shweta Pant, Talabattula Srinivas, Sundararajan Asokan, Indian Institute of Science (India)
  Published in Proceedings Volume 9754: Photonic Instrumentation Engineering III

- **Aerosols-cloud interaction during active-break cycle of Indian summer monsoon from satellite observations and cloud resolving model simulations**
  Anwesa Bhattacharya, V. Venugopal, Arindam Chakraborty, Indian Institute of Science (India)
  Published in Proceedings Volume 9882: Remote Sensing and Modeling of the Atmosphere, Oceans, and Interactions VI
The spatio-temporal structures and role of low- and high-frequency intraseasonal modes in Indian Summer monsoon rainfall observed in TRMM data
Nirupam Karmakar, Arindam Chakraborty, Ravi S. Nanjundiah, Indian Institute of Science (India)
Published in Proceedings Volume 9882: Remote Sensing and Modeling of the Atmosphere, Oceans, and Interactions VI

Planned Activities

We plan on three major workshops for the year 2016 on the following topics

1. Quantum Optics
2. Biophotonics
3. Nonlinear Optics

This is mainly to benefit the student community and to increase membership growth. Monthly technical talks are planned at various Educational Institutions as outreach activity. We also plan to visit more schools and colleges to create awareness on optics and photonics and its impact on our lives.

Financial Position

Technical talks are open to all.
Major Workshops are charged for Non-members
Expenses usually shared with OSA and IEEE Chapters.
The account of the SPIE-IISc students chapter is managed at Canara bank, Indian Institute of Science

Income:
Opening Balance: Rs. 55,620/-
Annual Chapter grant: Rs. 56,079/- (Received November 2015)

Expenditure:

<table>
<thead>
<tr>
<th>Activity</th>
<th>Cost</th>
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<tbody>
<tr>
<td>Outreach Programs</td>
<td>Rs. 4,500/-</td>
</tr>
<tr>
<td>Mementos to invited speakers</td>
<td>Rs. 2,300/-</td>
</tr>
<tr>
<td>Travel for invited speakers</td>
<td>Rs. 4,900/-</td>
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<tr>
<td>High tea and food arrangements during workshops</td>
<td>Rs. 41,270/-</td>
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</tbody>
</table>

Present Position: Rs.58,729/-

Some Pictures:

CRALT 2016 Tutorial sessions