<table>
<thead>
<tr>
<th>Date</th>
<th>Event</th>
<th>Activity</th>
</tr>
</thead>
<tbody>
<tr>
<td>16th August 2015</td>
<td>Outreach activity</td>
<td>Outreach activity conducted in Govt. school Trivandrum, by through talks and experiments.</td>
</tr>
<tr>
<td>6th November 2015</td>
<td>Guest lecture at IIST by Prof. S. Dutta Gupta</td>
<td>Prof. S. Dutta Gupta delivered a talk at IIST on “Three decades of Plasmonics and Nano Optics at University of Hyderabad”</td>
</tr>
<tr>
<td>10th and 11th November 2015</td>
<td>Visiting Lecture by Prof. Zeev Zelevsky</td>
<td>Prof. Zeev Zelevsky from Faculty of Engineering, Bar-Ilan University, Israel, delivered a talk on, “Photonic ear for remote detection of diseases and eye for super resolved imaging,” at Kerala Science and Technology Museum Auditorium on 10th Nov, and at IIST on 11th Nov.</td>
</tr>
<tr>
<td>1st December 2015</td>
<td>Talk by Prof. Ady Arie</td>
<td>Prof. Ady Arie from Dept. of Electrical Engineering, Tel Aviv University delivered a talk on, “New waves in holography.” Talk was arranged by SPIE-IIST chapter at University of Kerala with support of opto-electronics department.</td>
</tr>
<tr>
<td>26th December 2015</td>
<td>Outreach programs</td>
<td>Outreach program conducted by members of SPIE for school students by giving lectures.</td>
</tr>
<tr>
<td>27th January 2016</td>
<td>Talk by Dr. Nandan Singh Bisht</td>
<td>Dr. Nandan Singh Bisht from the Dept. of Physics, Kumaun University, delivered a lecture on, “Generation and characterization of broadband polarization entangled photon pair,” at IIST.</td>
</tr>
<tr>
<td>9th March 2016</td>
<td>Seminar by Dr. Dinesh N. Naik</td>
<td>A seminar on “Optical vortex beams from superposition of two Gaussian beams,” by Dr. Dinesh N. Naik, School of Physics, University of Hyderabad.</td>
</tr>
<tr>
<td>20th and 21st March 2016</td>
<td>“Illumination” an Optics exhibition by SPIE IIST chapter</td>
<td>As a part of CONSCIENTIA (the technical fest of IIST), an optics exhibition was organized for the first time by SPIE-IIST chapter members (graduate and undergraduate students).</td>
</tr>
<tr>
<td>16th and 17th April 2016</td>
<td>Holography Workshop</td>
<td>Practical sessions were conducted on conventional and digital holography to provide hands-on-experience for students.</td>
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<tr>
<td>Date</td>
<td>Event</td>
<td>Description</td>
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<tr>
<td>24&lt;sup&gt;th&lt;/sup&gt; May 2016</td>
<td>Seminar by Prof. Kedar Khare</td>
<td>A seminar was given by Prof. Kedar Khare from Dept. of Physics, IIT Delhi, on “Sparsity assisted optical phase imaging.”</td>
</tr>
<tr>
<td>1&lt;sup&gt;st&lt;/sup&gt; June 2016</td>
<td>Interaction and meeting of SPIE members</td>
<td>An informal meeting of members to interact more personally.</td>
</tr>
</tbody>
</table>

**About SPIE @ IIST 2015-2016**

The SPIE chapter at IIST associated with the applied optics lab at our facility, has been very much successful this year in bringing together people from interdisciplinary fields in performing experiments in the lab, training the undergrads and exposing them to current line of research, by conducting several scientific talks, demonstrations, outreach programs. Student meetings are conducted to discuss new ideas. New under-grads in the streamline of Engineering physics, and also graduate students with specialization in Optical Engineering have joined our SPIE chapter this year.

We received the Quality Lighting Teaching (QLT) Kit from SPIE and are planning to give the demonstrations in schools after taking ideas and suggestions given through hangouts and tutorials arranged by this QLT kit program. Two students from the chapter were accepted for the SPIE officer travel grant for the SPIE Optics+Photonics conference this year.

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**Our Lab**

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Applied and Adaptive Optics Lab at IIST
By the initiative taken by one of the under-graduate student member and with the help of the chapter advisor, they were able to conduct a workshop on holography for giving hands-on-experience for students.

The workshop started by a talk given by Dr. Rakesh Kumar Singh explaining the working principle of holography and how to implement it. This was succeeded by the experimental sessions on conventional and digital holography. The workshop was well-organized by the student members, giving ample amount of time for the students who attended the workshop, to understand and experiment with the kit provided to them.
The graduate and under-graduate student members in the SPIE chapter came up with the idea to use the platform of the college’s technical fest “CONSCIENTIA-2016,” to spread the awareness of the science of light, among the students from different colleges and schools from various streamlines who come to visit the fest. For that, we have exhibited several demonstrations, from an interestingly basic to some advanced experiments. All demonstrations were made in a lecture hall, due to the continuous visit of students from morning to evening for two days. Although some of them, due to the complexity of their setup, they were conducted inside the applied optics lab.

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**Demonstrations in optics exhibition along with the display of posters on Light pollution given by SPIE as part of Quality Lighting and Training kit program.**
Setup arranged for creation of optical vortex and also to display fork and spiral fringe patterns by the interference of plane, and spherical wavefronts with the helical wavefront of the vortex beam.

Students explaining the working of the setup

Fork and spiral patterns demonstrated and explained
Digital Holography recording and reconstruction
Lectures by visiting professors

Prof. S. Dutta Gupta from the University of Hyderabad, delivered a talk on Plasmonics and Nano-optics.

Prof. Zeev Zelevsky from Bar-Ilan University, Israel, giving a talk on “Photonic ear for remote detection of diseases and eye for super resolved imaging.”

Prof. Ady Arie from Tel-Aviv University, Israel, delivering a talk on “New waves in holography.”
Dr. Nandan Singh Bisht from the Dept. of Physics, Kumaun University, delivering a lecture on the, "Generation and characterization of broadband polarization entangled photon pair," at IIST.

A seminar given by Dr. Dinesh N. Naik, School of Physics, University of Hyderabad, on “Optical vortex beams from superposition of two Gaussian beams.”

Prof. Kedar Khare from the Dept. of Physics, IIT Delhi, giving a seminar on, “Sparsity assisted optical phase imaging,” at IIST.
Outreach programs
This year two students from the chapter (Swapnil Singh and Shreeya Natrajan) are selected for the SPIE officer travel grant for attending the SPIE Optics + Photonics conference 2016 to be held from 28th Aug-1st Sep 2016.

Last year conference visit by our student members Sai Krishna and Shankar Ram. SPIE Optical Metrology, Munich 2015.
Interaction and meeting of SPIE members

An informal meeting with SPIE-IIST chapter members (passed out) to have their opinion on our chapter activities and their continual active support for our chapter.
Research Activities done by student members

- Imaging through scattering medium
- Holography
- Wavefront sensing
- Laser cooling and trapping for atom interferometry
- Phase estimation from intensity
- Adaptive optics
Future plans

• We are planning to conduct seminars and talks on the research activities done and also on how to write a technical paper, by the graduate students, and research scholars for the awareness among the young under-graduate students.

• To extend the reach of the chapter by mutual collaboration with the local societies like the Kerala Science and Technology museum, which we are already doing and planning to continue it.

• Planning to have a visit to Holmarc Opto-Mechatronics Pvt. Ltd. Kochi with the student members after the start of the coming academic year.

• Organize a symposium for paper presentation in optics and photonics to bring together the common minds of this generation.

Trivandrum, 16th June 2016
Mr. Joshua Deepak Veesa
Chapter President
### Expenditure

<table>
<thead>
<tr>
<th>Description</th>
<th>Amount</th>
</tr>
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<tbody>
<tr>
<td>IIST SPIE chapter webpage subscription/awareness campaign</td>
<td>Rs.2000/-</td>
</tr>
<tr>
<td>Expenses for visiting professor’s travel expenses</td>
<td>Rs.33900/-</td>
</tr>
<tr>
<td>Expenses for arranging Optics exhibition, outreach programs, workshop and</td>
<td>Rs.12600/-</td>
</tr>
<tr>
<td>chapter member’s meeting</td>
<td></td>
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<tr>
<td>Cumulative expenditure till 1st June 2016</td>
<td>Rs.48500/-</td>
</tr>
<tr>
<td>Unspent money from last year</td>
<td>Rs.25150/-</td>
</tr>
<tr>
<td>Money obtained from SPIE as chapter activity grant</td>
<td>Rs.71488/-</td>
</tr>
<tr>
<td>Money left for further activities</td>
<td>Rs.48138/-</td>
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</tbody>
</table>

On behalf of Chapter member  
Ms. Darshika Singh  
Treasurer  

16/06/2016

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**List of student and faculty members**
• Rakesh Kumar Singh (Faculty)
• Sunil Chaubey
• Raghavan Chithra
• Vamsi Darbha
• Hriday Dath
• Nikhil Hubballi
• Unmesh Khati
• Arunita Kumari
• Sreelal M
• Vinitha M R
• Rajeeesh M.G.
• Yagya Malik
• Nandakishor Manu
• Ayisha Mashruf
• Shalabh Mishra
• Gokul G Nair
• Shreeya Natrajan
• Vinitha Nimma

• Bhagyashree Pagare
• Pramod Panchal
• Madhu Pettekat
• Jayadev Pradeep
• Kumar Rishav
• Ishani Salaria
• Shalina Salim
• Manjunath Siddaramaiah
• Darshika Singh
• Swapnil Singh
• Atul Somkuwar
• Niraj Soni
• Aparna V.
• Annie Varghese
• Joshua Deepak Veesa
• Vinu R V
• Shankar Ram
• Ritu

Newly elected chapter officers 2015-2016

• President: Joshua Deepak Veesa
• Treasurer: Darshika Singh
• Advisor: Rakesh Kumar Singh

Contacts:
Dr. Rakesh Kumar Singh: krakeshsingh@iist.ac.in

Mr. Joshua Deepak Veesa: jveesa@yahoo.com