Annual Report
October 2016 - October 2017

Officers
President: Sabad-e-Gul
Vice-President: Fang fang Wei
Secretary: Sufyan Huma
Treasurer: Almantas Konarskas

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Current members of the SPIE chapter

1. Sabad-e-Gul
2. Fangfang Wei
3. Xiaokang Lian
4. Muhammad Ifran
5. Arun Malik
6. Brian Rogers
7. Sanjay Keshri
8. Daniel Connell
9. Sufyan Huma
10. James Walshe

Chapter Activities

Outreach Activity
Transition Year Student’s Workshop DIT, 28th Feb 2017

Target audience: Transition year students (age 15-17 years)

In Ireland the Transition Year (TY) is a one-year programme taken after Junior Cycle and before the two-year Leaving Certificate programme. It is designed to act as a bridge between the Junior Certificate and Leaving Certificate programmes. It is available to all second-level schools and currently some 550 schools offer the programme. Transition Year may be optional or mandatory for students depending on the school’s policy. Each school designs its own Transition Year programme, within set guidelines, to suit the needs and interests of its students. In establishing its own distinctive programme content, the school takes into account the possibilities offered by local community interests.

During the transition year students typically spend time with industry, academia, community services, etc in order to identify possible career choices and identify the most suitable choices of subject in the Leavening Certificate Programme. The College of Sciences and Health hosts
a one week programme for transition year students who are interested in Science. The School of Physics, Clinical and Optometric Sciences is organising lab visits and demonstrations as part of this programme.

Six students involved with the DIT SPIE student chapter participated in the event this year. We demonstrated below mentioned experiments to transition year students and they really like the experiments also we got really god feedback from them.

<table>
<thead>
<tr>
<th>Name of experiments</th>
<th>Groups No.</th>
<th>Rate out of 10 from different groups</th>
<th>Sum of scores</th>
<th>Average score</th>
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<td></td>
<td>1  2  3  4  5  6  7</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Invisible Experiment - Rochester cloak</td>
<td>6  6  8  8  10  9  (8)</td>
<td>55</td>
<td>7.86</td>
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<tr>
<td>Pepper gram</td>
<td>6  7  ⭐️ (9)  9  9  10  9</td>
<td>59</td>
<td>8.43</td>
<td></td>
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<tr>
<td>Transmission and absorption-Gummy bear</td>
<td>7  6  8  9  9  10  7</td>
<td>56</td>
<td>8.0</td>
<td></td>
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<tr>
<td>Invisible glass experiment</td>
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<td>9.0</td>
<td></td>
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<tr>
<td>Laser vs. LED experiment</td>
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<td>56</td>
<td>8.0</td>
<td></td>
</tr>
<tr>
<td>View through diffraction glass</td>
<td>7  8  10  9  9  10  8</td>
<td>61</td>
<td>8.7</td>
<td></td>
</tr>
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</table>
Annual Meeting of Chapter members

Chapter also arranged annual meeting to meet all chapter members and discuss the upcoming activities.

Officer Travel Grant

SPIE Optics + Photonics 2017 (Travel Grant Activity)

Sabad-e-Gul successfully applied for the SPIE travel grant to, SPIE Optics + Photonics 2017, San Diego, California. During this conference time the DIT SPE chapter president attended.
different workshops for chapter officers. The Student Chapter Leadership Workshop was a wonderful opportunity to meet not only with other officers from all over the world and to learn about the challenges they have to face in their chapters.

Meeting with professionals from industry in a question and answer session to give direct feedback about their experiences and challenges they had to face to become successful was very useful for young postgraduate students.

Career workshop provided good opportunity to talk with industry people.
Visiting Lecturer 2017

The SPIE visiting lecture event was very successful with more than over 30 attendants. The SPIE visiting lecture event was advertised in collaboration with the School of Physics, Clinical and Optometric Sciences, DIT. The lecturer was chosen based on the research interest of members of the chapter in optical sensors. It was a very informative experience to meet Prof. Andrea Armani and students really enjoyed hearing about her research work.

The abstract of the talk “Portable Sensors based on Integrated Photonics and Functional Optical Materials is given below By Prof. Andrea Armani

Professor of Chemical Engineering and Materials Science, Electrical Engineering-Electrophysics, Biomedical Engineering, Chemistry

PhD, Applied Physics, minor in Biology, California Institute of Technology. BA, Physics, University of Chicago

Portable Sensors based on Integrated Photonics and Functional Optical Materials Innovation in technology routinely leads the way for discovery in chemistry and biology. Most notably, x-ray diffraction data was instrumental in the elucidation of the structure of DNA. To explore the inherent complexity present in biological systems, existing technologies are being pushed to their limits. Once again, scientists are looking to engineers to create innovative solutions to enable their exploration and discovery. However, the emphasis is governed by the specific application. While sensitivity enhancement is critical to achieve single molecule detection levels, in many applications, improved stability and reduced false-positive rates are of higher importance. Therefore, our research is driven by specific challenges posed by discussions with medical researchers and physicians. This talk will present a few of the novel sensing systems which have been intelligently designed to address their concerns. For example, we
have recently demonstrated a fully integrated polarimetric fiber sensor instrument for characterizing the mechanical properties of biomaterials, like tissue. Using this system, we have measured the mechanical behaviour of a wide range of recently resected samples, including animal and human tissue biopsies investigations. Additionally, we have synthesized and characterized a functional polymeric material which irreversibly cleaves upon exposure to UV light in several solvents and in film. This cleavage is selective to UV wavelength, with minimal response to visible or near-IR wavelengths, and upon cleavage, the polymer changes color. By using this polymer in a tri-layer structure, we have demonstrated a flexible UV indicator strip.
DIT SPIE Student Chapter Grant

Total amount received 468 €. The current budget available in our chapter account is 127€. Spent on visiting lecture 94.5, outreach activity 101.9 and additionally this year we will request for a grant. Also we will invite visiting lecture for the year 2018. We are having transition year student event on 28th of November.

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