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1. ADMINISTRATIVE FACILITIES

1.1. Administration

President: Ulaş Sabahattin Gökay (ugokay@ku.edu.tr)

Vice President: Basak Karakas (bkarakas@ku.edu.tr)

Advisor: Ali Serpengüzel (aserpenguzel@ku.edu.tr)

Coordinator: Nazmi Yılmaz (nayilmaz@ku.edu.tr)

1.2. Membership

There are currently 13 student members;

Ayşe Ekin Karayiğit
Başak Karakaş
Burak Güzeltürk
Erşen Beyatlı
Ersin Hüseyinoğlu
İsmail Yorulmaz
İşınsu Baylam
Mustafa Karabıyık
Oğuzhan Mete Öztürk
Philipp Heck
Uğur Parlatan
Umutcan Güler
Ulaş Sabahattin Gökay

As listed in: http://spie.org/x1742.xml?chapter_id=990083#StudentRoster
2. CHAPTER ACTIVITIES

2.1-Annual Solar Powered Model Vehicle Race: Solar Powered Amphibian (14 June 2012, more than 30 Participants)

Although solar energy is essential and useful in many advanced countries, it is not widely used in developing countries such as Turkey. Our main purpose in organizing this race is to raise attention towards the solar power as an alternative source of energy for middle school and high school students. This will encourage the students to explore the intricate world of optics and photonics, while the activities will improve their teamwork skills and let them learn the science behind the solar power while having fun in the process.

For the trials of the project in the summer of 2011, we required students to build a vehicle that can move on land and on water while being powered by the solar panels placed on top and sides of the vehicle. Students were supplied with the necessary equipment and with the work place in our university department. Students were also tutored about the workplace rules, building mechanical systems and harnessing the solar power before and during the build phase when they needed.

After this trial phase, the races were performed at the end of the spring 2012 term in the open swimming pool of the Koç University in Istanbul. There were 6 teams from 3 different high schools. The top three teams were rewarded with crystal plaques of the SPIE and the Koç University. Students were supplied with the solar powered model vehicle race t-Shirts and baseball caps with the SPIE logo on them and also, all students received participation medals from the university. This activity was funded by the Koç University SPIE student chapter.
Prototype solar powered amphibian vehicle on demo run in an ornamental pool, summer 2011

Completed amphibian vehicle with its remote, summer 2011
Finished solar powered amphibian vehicle in the swimming pool during the annual races, June 2012

A scene from the races, ‘Solar Powered Model Amphibian Vehicle Races’, June 2012
2.2- Astronomy Talk Nights (10 October 2012, more than 15 participants)

Astronomy is the first science practiced by humankind. The current information about the space is ever expanding. It is the duty of the universities and the science foundations to create and enhance the understanding of the space to students. With this quest, we try to organize talks given by invited speakers and observation nights for students so that a better understanding of space may arise.

For this purpose, we planned and organized Astronomy Talks Nights together with the Koç University Science Society and OSA student chapter. The activity included a presentation titled as the “Space: The Final Frontier,” which was given by one of our senior members. The talk included detailed information and high resolution photographs about the solar system with properties and environmental conditions of the planets and their natural satellites and also contained some astronomy terms and the telescope facts. After the presentation, a small discussion of the current space technology followed. Participants were eager to start sky observations as soon as the weather conditions permitted.

Participants at the Koç University Science Society Astronomy Talk, 10 October 2012
2.3: Distinguished Visiting Lecturer: Dr. Marc Himel (19 June 2012, more than 10 participants)

The impact of optics over the lives of the humankind has been enormous throughout the known history. Although, the sophisticated devices working on optics and photonics principles have emerged recently, this field is open for research for future decades.

Therefore, we have arranged an SPIE invited speaker seminar titled as ‘Harnessing Light for a better world’ which was given by the SPIE Fellow, Dr. Marc Himel of Jenoptik Gmbh. This seminar was planned and conducted with the help of College of Sciences and College of Engineering of Koç University and the activity was also announced in the annual science seminar series of our university. The abstract of the seminar is as follows:

“The first optical devices date back 2700 years while the laser was invented just 50 years ago. Advances in these technologies in the 20th century that are continuing (and perhaps accelerating) today have led to the development of products and systems that impact our lives on a daily basis. From vision enhancement to early disease diagnosis, from gaming interfaces to high speed communication networks, from renewable energy to enhanced security, from the cosmic scale to the molecular level, optical science and engineering is a fertile ground for the creative scientist and engineer. This talk will provide an overview of how our world today is impacted by optics and lasers and will look to how optics can assist with some of the greatest engineering challenges we face in the coming decades.”
2.4: Koç University Summer Research Program for High School Students (July 2012, more than 10 participants)

High school education is the precursor for a successful college degree and having a working laboratory experience is the most important as well as a solid theoretical background. Students who have met with the applied techniques in their early education are usually the most successful in the fields of science and engineering.

In this prospect, we organized a summer research program for 10 students from 5 different high schools for a period of 1 month. The main idea behind this program is to bring high school students into applied techniques and supply them with the necessary education for designing and building solar powered model vehicles. In this program, students were first tutored for laboratory and working place rules by our student chapter volunteers. In this phase, basic optics and photonics were taught as well as mechanical and electrical engineering. After this, students were required to design and build prototypes of solar powered model gliders for the 8th annual solar powered vehicle races in 2013 summer. These gliders were then successfully tried and the participating students were eager to join the next year’s races.

A scene from the summer research program for solar powered glider races, summer 2012
3-Conclusions and Future Work

In this report our chapter presents the updated information related to its administrative structure, members, and 2012 activities from within the chapter. Our main goal was to get the attention of the young people to optics and photonics, so we conducted various activities. In this academic year the Koç University SPIE student chapter successfully organized the Solar Powered Amphibian Race, Astronomy Talk Nights and invited a distinguished speaker from SPIE.

The activities named were organized with the help of the student members of the chapter and were also sponsored by Koç University, and Koç University OSA and SPIE Student Chapters.

Our chapter’s main aim for the future is to continue to raise an interest in optics and photonics in various levels of education. We plan to organize a solar powered micro glider race as our annual solar powered vehicle activity in the spring term 2013, and continue to organize the astronomy talk nights with observations, science festival for students and invited speaker talks with distinguished lecturers. We also hope to have more members for our chapter to contribute to even more activities.

Prepared by;

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