Optics Outreach in Istanbul
News from the OSA Student Chapter at Koç University

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The assembly of a solar-powered car and optics demonstrations at local schools are among the first projects to be undertaken by OSA's new student chapter at Koç University. Founded in the spring of 2002, the chapter counts 23 student and three faculty members, including advisor Ali Serpengüzel, an associate professor of physics.

Koç University was founded in 1993 to provide a stimulating intellectual environment for gifted students. An educational philosophy based on participatory learning fosters critical thinking and creativity, and there are numerous opportunities for students and faculty to interact outside the classroom. The official teaching language is English. Most graduates continue their academic studies at universities in the United States.

Optics at Koç

The Koç University Optoelectronics Research Center, established in 2003, promotes multidisciplinary research in optoelectronics. The center houses three research labs: the Microphotonics Research Laboratory, the Laser Research Laboratory and the Optical Microsystems Research Laboratory.

The Microphotonics Research Laboratory was established to design, implement and characterize novel materials, active and passive devices and systems for microphotonic and optoelectronic applications. The main focus of the lab is dense wavelength division multiplexing.

The Laser Research Laboratory focuses on the development and characterization of micro-optical electromagnetic (MOEMS) devices, display image quality, micro-optical elements such as diffraction gratings and microlenses, and scanning systems.

Most of the student chapter members participate in the research conducted in these three labs.

Getting started

The chapter was created under the auspices of the university science society. Ahmet Akin Ünal, president of the science society, says the aim of both groups is to increase students' technical prowess in the fields of science and optics and to give them opportunities to enhance their management and communication skills. Soon after the chapter was established, a Web page was created to inform people about its activities. In their first weekly meeting, chapter members decided to design a solar-powered car. This and other projects were selected, according to chapter vice president Ulaş Kemal Ayaz, to give participants hands-on experience in optics, engineering and optoelectronics. Another project centers on high-speed photography, with chapter members taking pictures of moving objects such as falling water droplets and breaking glass cups. To encourage new members to join the chapter, both projects were described to incoming students during the university's orientation program in September 2002.

Distinguished speakers

A fundamental component of chapter activities is the monthly seminar. The first seminar, on the future of optics in science and engineering, was given by chapter advisor Serpengüzel in May 2002. In July, Refik Kortan of Lucent Technologies, OFS Laboratories, Holmdel, N.J., gave a seminar on novel materials for photonics. In December, Vijaya Prakash from the University of Southampton, U.K., spoke on his research in silicon photonics.

A series of seminars will feature prominently in the chapter's future.
activities. Among the scheduled speakers: former OSA President Anthony Siegman, McMurtry Professor of Engineering Emeritus at Stanford University. Siegman is giving three lectures: “Masers and Lasers: Looking Back Over Fifty-Plus Years,” “Normal Modes and Not-So Normal Modes” and “Elementary Optics: What Happens When You Add Gain?” As part of the same series, Adnan Kurt, of the Koç University Physics Department, will present a video on how lasers are changing our daily lives.

Recently, members of the science society decided to launch a quarterly electronic journal called NewTone. The volunteer editors who oversee the publication are looking for popular science articles—mostly related to optics and photonics—from chapter members as well as from other university students. The first issue of the journal was published in January 2003.

“The publication offers an opportunity to describe ongoing research in a way that will motivate other students with a passion for science to get involved,” said Süleyman Cenk Yildiz, an editor of NewTone.

Under the supervision of Mehmet Ali Dündar, the solar-powered car project group is working diligently to increase the efficiency of the vehicle that has already been assembled and to build others that incorporate new solar cell models. The group is ready to mount the cells onto the cars.

In other news, science society members, including chapter officers Süleyman Cenk Yildiz and Bora Akçay, participated in the 4th European Youth Festival, held in Ankara in December 2002. The festival aims to bring young people together to foster networking among residents of different European countries. This year’s festival hosted approximately 1,500 people from 24 countries.

An OSA activity grant
The university campus is located in a wooded area that includes several towns with elementary, middle and high schools. Many of the students at these schools have not been exposed to modern science. Says the vice president of the chapter, Emre Özkumur, “As the first OSA chapter in the country, we are well aware of our responsibility to promote optics and photonics, starting with the neighborhood schools and going on to Istanbul and eventually the rest of Turkey.”

Through the OSA Member & Education Services Council, the student chapter this year received an activity grant of $990 to promote optics and photonics at local schools. Chapter members will demonstrate optics principles using the overhead projector and OSA’s Optics Discovery Kit.

Chapter members believe that the focus should be on elementary-level students, with a goal of awakening an interest in science at an early age through exciting, amusing demonstrations. Ayse Rezzan Köse, the chapter’s activity officer, explains that the demonstrations will be performed during class time, preferably during science classes: “The presentation will be as funny and exciting as possible.” The children will be encouraged to make their own scientific observations using readily available materials. Members of the chapter are engaged in translating the OSA Optics Demonstration Kit manual into Turkish.

OSA’s Koç University Student Chapter would like to thank OSA and Koç University—particularly the offices of the Dean of Arts and Sciences and the Dean of Students—for their support, and the chapter advisor for his guidance.