STUDENT CHAPTER BIANNUAL REPORT

“MAY 2007”
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1. ADMINISTRATIVE FACILITIES

1.1. Administration

President: Ahmet Faruk Coskun (ahcoskun@ku.edu.tr)
Vice-Presid.: Adil Tolga Gorgulu (agorgulu@ku.edu.tr)
Treasurer: Bora Karasulu (bkarasulu@ku.edu.tr)
Advisor: Ali Serpengüzel (aserpenguzel@ku.edu.tr)

1.2. Membership

There are 11 student members listed in our SPIE student chapter:

<table>
<thead>
<tr>
<th>Name</th>
<th>Expires</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ata Akin</td>
<td>30 September 2007</td>
</tr>
<tr>
<td>Caglar Ataman</td>
<td>31 March 2008</td>
</tr>
<tr>
<td>Huseyin Cankaya</td>
<td>30 November 2007</td>
</tr>
<tr>
<td>Ahmet Coskun</td>
<td>31 May 2008</td>
</tr>
<tr>
<td>Mehmet Dundar</td>
<td>30 November 2007</td>
</tr>
<tr>
<td>Ahmet Erdamar</td>
<td>31 August 2007</td>
</tr>
<tr>
<td>Sinan Fındık</td>
<td>31 January 2008</td>
</tr>
<tr>
<td>Tuncay Özel</td>
<td>31 March 2008</td>
</tr>
<tr>
<td>Ali Serpengüzel</td>
<td>30 April 2008</td>
</tr>
<tr>
<td>Sirma Yavuz</td>
<td>31 December 2007</td>
</tr>
</tbody>
</table>

2. CHAPTER NEWS

2.1. Graduate School Acceptance

<table>
<thead>
<tr>
<th>Name</th>
<th>University</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sultan Doğanay</td>
<td>University of Illinois at Urbana-Champaign</td>
</tr>
</tbody>
</table>

2.2. Our Scholarship and Grant winners

<table>
<thead>
<tr>
<th>Name</th>
<th>Won</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bora Karasulu</td>
<td>Travel Grant (2007)</td>
</tr>
<tr>
<td>Mehmet Dündar</td>
<td>Scholarship (2007)</td>
</tr>
</tbody>
</table>

2.3. Our website is under php development
3. CHAPTER ACTIVITIES

3.1. SOLAR BOAT RACE

Güneş Enerjisi ile Çalışan Model Bot Yarışı

http://kulego.ku.edu.tr/solarboat.htm

son başvuru: 11 Mayıs 2007
yarışma günü: 20 Mayıs 2007

YER: Koç Üniversitesi Yarı Olimpik Yüzme Havuzu,
Rumelifeneri yolcu Sarıyer/Istanbul

iletisim: ahcoskun@ku.edu.tr
**Aim of the Race**

The aim of race is to promote and develop interest and expertise in using solar and renewable energies by primary, middle, and high school students throughout the world by using active learning processes in addressing real challenges.

**About the Race**

Race will be in two categories as single solar panel design and double solar panel design.

Groups will be given solar boat kits, and each group will come up with their original designs. Each solar kit includes one or two solar panel, propeller, and other supplementary parts. The objective is to develop a boat that will most effectively travel along a guide line suspended above the water from one end to the other of a 12.5 meter pool, in the shortest possible time.

Two boats will race each other in the pool at the same time to determine a winner. In addition to the prizes for the fastest boats, discretionary prizes will be awarded as described in the following sections. Each group is responsible for preparation of a poster that describes the steps of designing of boat. At the end of the race the jury will choose the best poster. Additionally each group should prepare a team uniform so that the jury will determine the best team uniform.

**Entering The Competition**

Race will be held on **Sunday May 06th**. Each team should have 2-3 team members. Registration forms should be submitted by April 28th.
**Regulations**

Any other than in the given kit solar cell cannot be used.

Any number and type of motor is allowed.

Just one propeller is allowed, but in case teams can use different propeller than in kits.

Commercially available boat hulls or kits may be used. Entrants can also design and construct their own boats in the year of the race.

Teams can use electronic components if they know their functions and used those components in designs themselves. If capacitors was used, make sure that before the race they are discharged.

To enable boats to steer a straight line, they should be fitted with rods with open through which the guide line will run. This line will be located as near as possible 30-50 cm above the water. Other designs than the one shown may be used.

A switch must be installed between the solar panel and the motor.

No batteries or storage devices are allowed.

**Technical Advices:**

In B category It is recommended that the cells are connected in series if the weather is sunny, but in parallel if cloudy.

A medium torque low voltage (3 volt) hobby motor available from hobby or electronics shops is recommended.

Recycled materials which might be useful include;

- plastic juice, milk and PET soft drink bottles.
- Aluminium cans
- Pieces of polystyrene
- Foam, plastic and aluminium food containers
Model building materials such as balsa wood, metal rods and tubing, propellers and shafts, motors, polystyrene, fibreglass, adhesives and silicone sealants are available from model shops and hardware shops.

Make sure that components will not be directly interacted with water, in order to prevent that carefully place components to your design.

**Posters:**

Each team should keep a record of the work they carry out designing, building and testing their boat in a log book. This information will then enable teams to develop an 50 x 75 cm poster which should be laminated or contact coated and should be submitted to the officials when their entry is being scrutinised - the best will be subsequently displayed and a prize awarded for the best one. The poster should include written information, photos or labelled diagrams showing the development and testing of your boat. It should contain the school and boat name and the team members. Teams may be interviewed about your design so that we can learn more about how you went about it.
**Awards:**

In A, B, and C categories as the shortest time ranking first, second and third winner groups will be given surprise awards.

Among all teams 3 groups will be given prizes according to following categories:
- Most Innovative design
- Best Posters
- Best Team Uniform

All students who participate in the event will receive a medal.
3.2. OPTICS AND PHOTONICS RELATED SEMINARS

Prof. Akin’s seminar was successfully done…

This seminar will be in Turkish. So it is normal not to understand following section.

Asst. Prof. Ata Akin, Biomedical Engineering Institute, Bogazici University

Title: "Nörobilimde optik görtüntülemenin rolü".

Abstract:
Optik görtüntüleme son 15 yılda teknoloji gelişmelere koşut olarak ubben çeşitli alanlarında kullanılmaya başlanmıştır. Özellikle yakın kızılötesi dalga boylarında (700-900nm) çalışan ilk kaynakların türlemesi ile 1990’lardan itibaren beyin çalışmalarda hız kazanmıştır.

Nörobiliminin bir alt dallardan olan nörogörtlüntülemede amaç çalışan beinindeki fizyolojik değişimleri hızlı ve yüksek çözünürlükte izleyebilmektedir. Biyofotonik Laboratuvarımızda geliştirilmiş NIOXCOPE 301 sistemleri ile yakın-kızılötesi spektroskopji yöntemi temel alınarak beyindeki oksijen tüketimi anlık görtüntülenebilmeaktır, bulgular ise bu yontemin migren, şizofren, dikkat eksikliği gibi nörovestiller kuşkusuz olduğu bilinen hastalıkların patofizyolojisine iğ팀 tutabilmektedir. Bu konusmada, fotonların beyin içerisindeki seyahatinden, fizyolojik sistemlerle ilişkisine ve oradaki hastalık tıbbi olarak öneminin detaylaştırılacaktır. Çeşitli deneysel ve klinik uygulamaların yanı sıra, foton güçü modellerinden de bahsedilecektir.

Biography:
Dr. Ata Akin, lisans diplomasını İstanbul Teknik Üniversitesi, Elektronik ve Haberleşme Mühendisliği Bölümü'nden 1993'te, yüksek lisans diplomasını aynı üniversitenin Biyomedikal Programı'ndan 1995'te almıştır. Dr. Akin doktora derecesini, Biyomedikal Mühendisliği üzerine, Drexel Üniversitesi School of Biomedical Engineering'den 1998'de almıştır. 1999 Ocak'tından itibaren aynı üniversitede Araştırma Yardımcı Doçent Dr. olarak çalışmaya başlamış ve ONR, DARPA, NIH gibi kuruluşların aynı zamanda da çeşitli şirketlerden araştırma projelerine destekler almıştır. 2002'de Boğaziçi Üniversitesi Biyomedikal Mühendisliği Enstitüsü'nde Yardımcı Doçent olarak çalışmaya başlamıştır. Dr. Akin'ın araştırma alanı nörogörtlüntüleme ve sistem biyolojisidir.

Nörogörüntüleme alanında yakın kızılötesi dalgalarynda çalışan biyomedikal optik sistemler geliştirerek beyin ve kas metabolizmasına ait hastalıkların ve meme kanserinin erken tamsına yönelik olmuştur. Sistem biyolojisi üzerine yaptığı araştırmalar ile insan biyolojisi ve biyokimyasının matematiksel yöntemlerle modellemesi sayesinde meme kanseri, metabolizmal hastalıklar ve sporcu performansı fizyolojisinin daha iyi anlayacak yaklaşımlar geliştirilmektedir.
Prof. Serpengüzel’s seminar was successfully done...

Prof. Ali Serpengüzel, Department of Physics, Koc University

Title: Optics and Photonics: from micro to nano

Abstract:
Photonics is one of the fastest developing fields of the past decade, and the same growth trend can be expected for the first couple of decades of this new millennium. Photonics, currently placed at the intersection of Physics, Electrical Engineering, Optical Engineering, and Material Science, is expected to be a full-fledged discipline of its own within this time frame. Microphotonicics will have an impact that is similar to the one that Microelectronics had over the past decades. In this talk, I will concentrate on the current and future applications of photonics. Then I will concentrate on our research on silicon and silica microsphere cavities.
3.3. VISITING LECTURERS

In May 2007 Anthony DeMaria from Coherent Technologies will be coming as our guest speaker to our institute.

Anthony J. DeMaria
Professor in Residence,
ECE Department
University of Connecticut
Storrs, CT USA

and

Chief Scientist
Coherent, Inc.
1280 Blue Hills Avenue
Bloomfield, CT 06002

Tel: (860) 769-3313
Fax: (860) 243-9577
Email: Anthony.demaria@coherent.com


Prof. Maria’s Lecture was cancelled due to health problems.

He suggested us a replacement speaker as follows:

Prof. James A. Harrington of Rutgers University as a replacement speaker.

He is an expert on IR and THz fibers.

He was president of SPIE a year before Prof. DeMaria.

He can be reached at: jaharrin@rci.rutgers.edu.

Due to time constraints we have not invited Prof. Harrington. But this year we would like to invite Prof. Harrington as well as other visiting lecturers.

Here is a detailed biography of Prof. Harrington.
4. CONCLUSION

In this report our chapter presented information related to its administrative structure, activities (mainly solar boat), and news from the chapter. This year we again completed big organizations. Mainly we try to emphasize solar powered systems in our plans, because it is not only an environmental issue but also it can easily be done by students from primary, and high schools. That’s why Koc University’s educational outreach is tried to be employed. Consequently, both students and our chapter members are satisfied with what we have accomplished. Keep eye on us! If any question arises, feel free to contact via ahcoskun@ku.edu.tr
5. Appendixes

Our chapter in spie.org is as follows:

Student Chapter
Koc Univ. Chapter
Microelectronics Research Laboratory
Bumble Bee Sea Yolu
Sunyer Istanbul
Turkey
Phone: 90 212 338 1312
Web: http://spie.ki.edu.tr

2007 Chapter Benefits
<table>
<thead>
<tr>
<th>Benefit</th>
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<tr>
<td>Activity Grant</td>
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<td></td>
</tr>
<tr>
<td>Officer Travel Grant</td>
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<td></td>
</tr>
<tr>
<td>Post Books</td>
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<td></td>
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<tr>
<td>Visiting Lecturer</td>
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</tr>
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</table>

2007 Chapter Officers
President: Ahmet Coskun
Treasurer: Mehmet Dander
Advisor: Ali Senpengozal

Latest Report:

Member Roster
Total Student Members: 30 [View Roster]