



EAA Summer Schools

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ABSTRACT

EAA Summer Schools are an integral part of the Young Acousticians Programme in the European Acoustics Association. They consist of various courses at an advanced level, taught by internationally recognized and distinguished experts in acoustics, and they are integrated into a European regional conference. Furthermore, structured sessions of the conference are related to the summer school courses, thus connecting basic lectures to keynotes and other invited papers on advanced topics. Those sessions are co-chaired by one experienced expert and one young acoustician, typically a doctoral student. The first EAA Summer School will be held in Ljubljana, Slovenia, in September 2010 with short courses on Soundscape, Voice and Musical Acoustics, Building Acoustics, Hydroacoustics, Numerical Methods, Psychoacoustics and Ultrasound. In the presentation we will illustrate the background and the motivation of this initiative. Content, organization and future plans of integration into the European higher education in acoustics are discussed.

INTRODUCTION

The European Acoustics Association (EAA) was established in 1992. Members are societies in European countries that are interested in the objectives of the EAA. The objectives of EAA are to promote and spread the science of acoustics, its technologies and applications throughout Europe and the entire world. The EAA gathers 30 societies of acoustics and serves more than 9000 individual members all over Europe.

The European Acoustics Association has created various initiatives for supporting and promoting students and young acousticians. The EAA Young Acousticians Programme was started in 2005 and extended recently. The first component was the Grant for East European students for participation in the main EAA conferences FORUM ACUSTICUM and EURONOISE.

Later, in 2009, the EAA board and Executive Council discussed an extension of this approach to students from all countries and to a more general scheme. "Students" in this respect are young acousticians on the Master or PhD level, typically not older than 35 years. The following elements are combined in this concept:

- 20 Student Grants for conference participation in EAA conferences,
- Best paper / Best Poster Award for student papers and posters at EAA conferences,
- Supporting students in finding courses and internships in acoustics and providing information on funds (via the Web-based university guide of EAA: SCHOLA),

The Young Acousticians Programme includes also a service for networking of the members. A networking platform is integrated in the website of the EAA, FENESTRA (www.european-acoustics.net). This way, interested groups such as students on Master and PhD levels communicate on various topics related to their higher education. Questions, discussions and information are collected and forwarded with regard to scientific problems, contacts with companies, institutions and laboratories, and to possible sources of funding for internships or exchange programmes.

Furthermore, with the introduction of a new type of EAA event, EUROREGIO as an additional feature of European regional conferences, the young Acousticians programme was amended by the component of "Summer Schools", offering specific courses on hot topics in acoustics.

EUROREGIO CONFERENCES

There are plenty of conferences on acoustics in Europe. Usually national acoustical societies organize their annual meetings, some of which are of a large size. United Kingdom with focused IoA conferences in spring and autumn, France with the biannual CFA meeting, Germany with the annual DAGA conference, are examples of such events. In the 1990s EAA added the triannual FORUM ACUSTICUM and the EURONOISE conferences. Just inventing another EAA event, however, would not be reasonable, since the conflict with too many national and regional meetings would be obvious.

EUROREGIO is not a new conference added to the calendar, but an expression of European support for traditional regional

events organized by groups of countries, such as the congresses on Iberian peninsula, in the Nordic-Baltic region and in the Alps-Adria region. Where and when appropriate, the regional events can be extended towards a full European and international scale. The first EUROREGIO conference will be held in Ljubljana, Slovenia, from 15 to 18 September 2010 (www.european-acoustics.org).

An idea which was on the agenda of EAA since a long time was realized and integrated in the concept of EUROREGIO: the so-called "EAA Summer school". Discussion on activities in acoustics education ("EAA Tutoria") was started in the founding phase of the EAA in the 1990s, but only now has the financial and organizational basis become sufficiently stable to start this project.

EAA SUMMER SCHOOL

The EAA Summer School is conceptualized as an event where Master and PhD students of acoustics, as well as other young acousticians, can learn about a variety of new accomplishments in the field of acoustics in half day courses (3-4 lectures) or full day courses (5-6 lectures). The courses mainly consist of classical lectures, but round tables and discussion groups in order to help in understanding and clarifying the lecturing materials are integrated as well.

The EAA Summer School for young researchers will be a special feature of this year's EAA EUROREGIO. It is entitled "First Forum of Young Researchers in Acoustics" and will be held prior to the congress in Ljubljana, Slovenia, from 13 to 15 September 2010 in the same venue as the congress.

The programme of the summer school includes seven courses with different topics, namely:

- Topic 1: Soundscape (full day course)
- Topic 2: Voice/Musical Acoustics (full day course)
- Topic 3: Building Acoustics (full day course)
- Topic 4: Hydroacoustics (half day course)
- Topic 5: Numerical Methods (half day course)
- Topic 6: Psychoacoustics (half day course)
- Topic 7: Ultrasound (half day course)

It is worth mentioning that the courses numbered 1-3 are co-sponsored by three COST projects (European Cooperation in Science and Technology). Other courses are sponsored by the EAA itself. Sponsoring includes that grants for free participation are offered, see below.

The lecturers will be internationally recognized and distinguished professors and experts in acoustics. They were invited by the EAA board and the EAA technical committees. The following lecturers with their lectures are scheduled for the summer school:

Soundscape

- Brigitte Schulte-Fortkamp: Introduction to the course. How soundscape came into Community Noise
- Ronny Klæboe: Noise annoyance evaluation
- Volker Irmer: Noise control techniques
- Dick Botteldooren: Engineering Methodologies for the Soundscape approach
- Jian Kang: Soundscape approach for architecture and urban planning
- Luigi Maffei: Round Table - Summary – Discussion

Voice/Musical Acoustics

- Wilfried Kausel and Malte Kob: Physics and Models of Musical Instruments and the Human Voice
- Malte Kob and Wilfried Kausel: Acoustic Measurement Methods for Musical Instruments

- Nathalie Henrich and Malte Kob: Voice Analysis Methods
- Ingrid Bendl and Wilfried Kausel: Inverse Filtering and Impedance Measurement Workshop
- Nathalie Henrich: Singing Voice Assessment Workshop: Electroglottography and Impedance Measurement Techniques
- Malte Kob: Acoustic Voice Quality Assessment Workshop

Building Acoustics

- Eddy Gerretsen: Prediction models in building acoustics
- Michael Vorländer: Auralization of sound insulation
- Sabine Schlittmeier: Psychoacoustic methodologies in laboratory experiments (attention, privacy, performance)
- Kerstin Persson Waye: Psychoacoustic and social methodologies in the field (social surveys, annoyance of neighbour noise)
- Birgit Rasmussen: Round Table - Summary – Discussion

Hydroacoustics

- Grazyna Grelowska: Investigation of the seabed by means of acoustic methods
- Tim Leighton: Long distance acoustic propagation in the ocean: Sound speed profile, SOFAR channel, ray bending in the ocean, absorption, propagation to distance, Heard Island experiment
- Tim Leighton: Exploitation of ambient noise: Acoustic daylight, use of acoustics to sense air/sea mass transfer, sensing of rainfall
- Tim Leighton: Bubble acoustics and cavitation

Numerical Methods

- Andrew Peplow: Acoustical Finite Elements: General Theory
- Andrew Peplow: Advanced methods and applications of new methods in Finite Elements
- Martin Ochmann: Acoustical Boundary Elements: General Theory
- Haike Brick: Acoustical Boundary Elements: Special subjects, applications, and examples with BEMLAB

Psychoacoustics

- Armin Kohlrausch: New developments and results in psychoacoustic modelling
- Hugo Fastl: Audio-visual interactions in loudness perception and localization
- Klaus Genuit: Psychoacoustic applications in sound quality management

Ultrasound

- Adriano Alippi: Ultrasound propagation in free space and guided structures
- Enrique Riera: Power ultrasound
- Adriano Alippi: Nonlinear effects in ultrasound sources and propagation
- Enrique Riera: Industrial and medical applications

CERTIFICATION

Interested young researchers must register for the summer school on the congress website indicating which courses they plan to attend (at least two courses of their choice). As some of the courses will run in parallel at the same time, the participants can choose at most three courses.

Further on, students enrolled in the summer school must also attend the structured sessions related to the topics of the summer school during the next two conference days in order

to deepen their understanding of the specific field of acoustics, and to get better acquainted with the scientific work in that field. Some of the young acousticians are also involved in the organization of structured sessions. As co-chair, together with an experienced colleague, they learn about the internal details of scientific conferences.

The last day of the event is scheduled for written exams for the participants of all summer school courses. If the exams are passed, the participants of the summer school will receive a certificate with 2 ECTS credit points for 2 courses plus the connected structured sessions.

GRANTS

In order to motivate young acousticians to participate in the summer school, EAA decided not to ask for any additional summer school fee, i.e. the registration fee for the congress includes also the participation in the summer school.

Moreover, the EAA will, according to its objectives, support with grants the participation of a limited number of European young researchers and students in the EAA Summer School, as part of the First Forum of Young Researchers. The grant includes free registration for the summer school and the congress.

To apply for these grants, young researchers must be enrolled in a university course (Master, PhD) or already have a Master or a PhD degree, be no more than 35 years old, and be a citizen of one of the European countries with a member society in EAA.

National acoustical societies are also encouraged to support the participation of their young acousticians in the summer school by other means, e.g., with grants offered at the national level.

Furthermore, the EAA will offer six Best Paper and Presentation Awards to young researchers who will present a paper as first author at the EAA EUROREGIO 2010 Conference. The award amount is 500 €

To be eligible to the "Best Paper and Presentation Award" the young researcher should be no more than 35 years old, be the first author of the submitted abstract and full paper, and must present the paper at the meeting (oral or poster presentation). The award winners will be selected by a jury nominated by the EAA board. The selection will be based upon the quality of both the content of the paper and its presentation.

YOUNG ACOUSTICIANS NETWORK

The Young Acousticians programme furthermore includes a self-sustained student network – from students for students. This network is a non-profit student initiative within the EAA with the primary goal to establish a community for PhD students in the field of acoustics; to connect young researchers and to provide support.

It organises student events at scientific conferences and provides services that contribute to the community. These services include the maintenance of the EAA Young Acousticians Network website and also opportunities for direct e-mail contact. The target group are primarily European Master and PhD students working in acoustics, but students living outside Europe are also eligible for membership. As there are already student associations in some of the European countries, a further role of the network is to integrate these national student groups, and to provide opportunities for international discussion and study/work options.

Also, planning activities for the EAA Summer School are very much assisted by the EAA Young Acousticians Network. In case of the summer school, the network is informing the whole registered student community through an e-mail list about EUROREGIO and all activities connected with the summer school. More specifically, it will help with the general organization, find PhD students for co-chairing the structured sessions, organise social events such as parties, barbecues, hiking tours, bike riding, and so on.

SUMMARY AND CONCLUSION

A new type of acoustic conference is going to be created. It combines a scientific programme of oral and poster presentations with a Summer School for Young Acousticians. Young Acousticians are involved in the conference organization by co-chairing structured sessions. The Summer School covers all major fields of acoustics and the lectures are offered by well-known experts. Free participation for Master and PhD students is provided by a large number of grants.

Without doubt, gathering engineers and scientists under an umbrella such as a non-profit association has social and scientific advantages. Sharing information and using common platforms (conferences, journals) for the presentation of research results, technical development and progress in instrumentation are crucial actions of all scientific associations. In this way EAA, the European Acoustics Association, has operated since the time of its foundation.

Nevertheless, the seed for scientific progress in a specific field is the young generation. In the long run, the approach to continuously integrate the experience of experienced scientists with the enthusiasm of students and young researchers will be a winning feature of an association.

The EAA Young Acousticians Programme is a strong initiative to put these general principles into action. Thanks to the support of its national members, EAA has launched the first Summer School inside the EUROREGIO Conference. The first Summer School will be held in Ljubljana, Slovenia, in September 2010. It will be the most prominent component of the Young Acousticians Programme. The EAA Summer schools will not substitute the various academic courses on acoustics which are offered worldwide, but they will be platforms for the integration of young acousticians at an international level.

REFERENCES

- 1 EAA Website: www.european-acoustics.org
- 2 Young acousticians network: <http://www.european-acoustics.org/student-network>