Young Acousticians Newsletter

NEWSLETTER - ISSUE No. 44, December 2015

What's New!

Summary



Agenda

Deadlines and events are provided for the next two months (PAGE 2-3)
Please contact us if you are aware of any change



Publications

This month we have a publication on Nonlinear Acoustic Waves (PAGE 4)



Local News

Some news from local events: Underwater acoustics and sonar systems course (PAGE 5)



Open Positions

Relation of some job positions (PAGE 6)

· The EEA SUMMER SCHOOL at EuroRegio 2016 is coming! Which courses and level would you like to attend? Complete the survey! (The YAN gives you the opportunity to share with us your interests to make them possible)

For more information go to PAGE 5

· Belgian Young Acoustician Network (B-YAN) event

For more information go to PAGE 3

Agenda: Upcoming deadlines and events

Upcoming events December 2015, January & February 2016

6th – 10th December 2015: (WESPAC 2015) 12th Western Pacific Acoustics Conference 2015. Singapore (Singapore).
http://www.wespac2015singapore.com/

7th - 11th December 2015: 9th GDR Conference on Wave Propagation in Complex Media for Quantitative and Non Destructive Evaluation. Aussois (France).
http://sfa.asso.free.fr/ECHO_HEBDO/2015/doc/aussois%202015-final.pdf

18th – 20th December 2015: (Congresso de Organologia 2015) 4th International Scientific Meeting for Sound and Musical Instrument Studies. Tavira, Algarve (Portugal).
https://sites.google.com/site/animusicpt/httpsitesgooglecomsiteanimusicptintroduo/activities/eventos/congresso-da-organologia/congresso-de-organologia-2015

7th – 8th January 2016: (SpiN 2016) 8th Speech in Noise Workshop. Groningen (Netherlands).
http://spin2016.nl/

9th January 2016: (SPIRE) Speech Processing in Realistic Environments. Groningen (Netherlands).
http://inspire-itn.eu/index.php/inspire-events/workshop-spin2016/

13th - 15th January 2016: (AFPAC 2016) 15th Anglo-French Physical Acoustics Conference. Surrey (UK).
http://afpac2016.iopconfs.org/home/

18th - 24th January 2016: 13ème édition de La Semaine du Son. France.
http://www.lasemaineduson.org/-2016-13eme-semaine-du-son-?lang=fr

25th January 2016: PhD and Young Acousticians' Day. Gent (Belgium).
http://www.abav.be/events.php?action=see&id=56

28th January 2016: Fachdiskussion: Tempo 30 – Objektiv Durchleuchtet. Aarau (Switzerland).
http://gundp-fachtagung.ch/en/home/

3rd - 5th February 2016: AES 60th Conference on DREAMS (Dereverberation and Reverberation of Audio, Music, and Speech). Leuven (Belgium).
http://www.aes.org/conferences/60/

10th - 12th February 2016: AES 61st Conference on Audio for Games. London (UK).
http://www.aes.org/conferences/61/

18th - 20th February 2016: 2016 Annual NHCA Conference. San Diego, California (USA).
http://www.hearingconservation.org/event/2016Conference/

Submission deadlines December 2015, January & February 2016

1st December 2015: (ICSV23) 23rd International Congress on Sound and Vibration (Abstract).
http://www.icsv23.org/

1st December 2015: (CESB16) Central Europe towards Sustainable Building 2016 (Full Paper).
http://cesb.cz

15th December 2015: PhD and Young Acousticians' Day (Abstract).
http://www.abav.be/events.php?action=see&id=56

20th December 2015: (ICAV 2016) International Conference on Acoustics and Vibration (Full Paper).
http://www.atavi.org/ICAV2016/

31st December 2015: (ICNMC 2016) 2nd International Conference on New Music Concepts (Abstract).
http://www.studiomusicatreviso.it/icnmc/icnmc.php

31st December 2015: (VII UbiMus) 7th Workshop on Ubiquitous Music - Ubiquitous Music and Everyday Creativity: Artistic, Educational and Computational Applications (Abstract).
http://www.inf.poa.ifrs.edu.br/~ubimus/

31st December 2015: (Noise Control 2016) XVII International Conference Noise Control (Abstract).
http://www.ciop.pl/konferencje/noise_16/

15th January 2016: (ICTAM 2016) 24th International Congress of Theoretical and Applied Mechanics (Abstract).
http://www.ictam2016.org/

15th January 2016: (12th IWRN) 12th International Workshop on Railway Noise (Abstract).
http://iwrn12.acoustics.asn.au/

Agenda: Upcoming deadlines and events

20th January 2016: 12th Intl Conference on Vibration Measurements by Laser and Noncontact Techniques & Short Course (Abstract).
http://www.aivela.org/12th_Conference/index.html
22nd January: (ICMPC14) 14th Biennial International Conference on Music Perception and Cognition (Abstract).
http://icmpc.org/icmpc14/index.html
25th January: (NIME 16) New Interfaces for Musical Expression 2016 (Abstract).
https://nime2016.wordpress.com/
30th January 2016: (ICSV23) 23rd International Congress on Sound and Vibration (Full Paper)
http://www.icsv23.org/
31st January 2016: New England Noise-Con-16: Revolution in Noise Control (Abstract).
http://inceusa.org/links/NoiseCon2016.pdf
7th February 2016: (ICNMC 2016) 2nd International Conference on New Music Concepts (Full Paper).
http://www.studiomusicatreviso.it/icnmc/icnmc.php
29th February 2016: 32nd European Conference on Acoustic Emission Testing (Abstract).
http://www.cndt.cz/ewgae2016/
29th February 2016: (WCNDT 2016) 19th World Conference on NDT (Full Paper).
http://www.wcndt2016.com/
29th February 2016: (Aquaticnoise 2016) 4th International Conference on The Effects of Noise on Aquatic Life (Abstract).
http://aquaticnoise2016.org/

Belgian Young Acousticians Network (B-YAN)

The Belgian Acoustical Society (ABAV, www.abav.be) is a member of the European Acoustics Association (EAA), which contains a very strong YAN (Young Acousticians Network) and Schola, a platform for finding education on acoustics across Europe. ABAV supports the Belgian branch of the YAN, B-YAN, since its start in 2014.

On Monday January 25th 2016, ABAV and B-YAN organize the third young acousticians day in Gent. The event will take place at the Oude Infirmerie of the Cultuur- en Congrescentrum Het Pand (Onderbergen 1, 9000 Gent) from 10:00 to 16:00 and will be followed by a farewell drink. B-YAN aims at establishing a strong Belgian community for young researchers and young professionals in the field of Acoustics.

All PhD students, young post-doc and young acousticians in general are invited to present their ongoing research at this event. It is a unique opportunity for exchanging ideas, discover what goes on in research institutes in the region and to make new friends, both young and less young.

To participate, please send the title of your contribution together with a max. 250 word abstract (in English) and your preferred presentation style (oral, poster, any) to Prof. Dick Botteldooren (ABAV president, dick.botteldooren@intec.ugent.be) and Debby Wuyts (ABAV general secretary, debby.wuyts@bbri.be) before December 15th 2015. Acceptance notice, type of presentation (oral /poster) and final program will be announced before January 5th 2016. Participation is free of charge and lunch will be offered to all participants.

Student membership in ABAV is only 15 euro per year (including PhD-student). For this fee you become part of a society of people with one common interest: acoustics. As an ABAV/EAA member you also get online access to Acta Acustica united with Acustica and a strong discount on all EAA events such as Forum Acusticum, Euronoise, Symposia.

See www.abav.be for information on how to become a member.

Title: Nonlinear Acoustic Waves in Complex Media
Author: Noé Jiménez González
School: Universitat Politècnica de València (UPV), València, Spain

Abstract: Nature is nonlinear. The linear description of physical phenomena is useful for explain observations with the simplest mathematical models, but they are only accurate for a limited range of input values. In the case of intense acoustics waves, linear models obviate a wide range of physical phenomena that are necessary for accurately describe such high-amplitude waves, indispensable for explain other exotic acoustic waves and mandatory for developing new applied techniques based on nonlinear processes. In this Thesis we study the interactions between nonlinearity and other basic wave phenomena such as non-classical attenuation, anisotropic dispersion and periodicity, and diffraction in specific configurations.

First, we present intense strain waves in a chain of cations coupled by realistic interatomic potentials. Here, the nonlinear ionic interactions and lattice dispersion lead to the formation of supersonic kinks. These intrinsically-nonlinear localized dislocations travel long distances without changing its properties and explain the formation of dark traces in mica crystals. Then, we analyze nonlinear wave processes in a system composed of multilayered acoustic media. The rich nonlinear dynamics of this system is characterized by its strong dispersion. Here, harmonic generation processes and the relation with its band structure are presented, showing that the nonlinear processes can be enhanced, strongly minimized or simply modified by tuning the layer parameters. In this way, we show how the dynamics of intense monochromatic waves and acoustic solitons can be controlled by artificial layered materials.

In a second part, we include diffraction and analyze four types of singular beams. First, we study nonlinear beams in two dimensional sonic crystals. In this system, the inclusion of anisotropic dispersion is tuned for obtain simultaneous self-collimation for fundamental and second harmonic beams. The conditions for optimal second harmonic generation are presented. Secondly, we present limited diffraction beam generation using equispaced axisymmetric diffraction gratings. The obtained beams are truncated version of zero-th order Bessel beams. Third, the grating spacing can be modified to achieve focusing, where the generated nonlinear beams presents high gain, around 30 dB, with a focal width which is between the diffraction limit and the sub-wavelength regime, but with its characteristic high amplitude side lobes strongly reduced. Finally, we observe that waves diffracted by spiral-shaped gratings generate high-order Bessel beams, conforming nonlinear acoustic vortex. The conditions to obtain arbitrary-order Bessel beams by these passive elements are presented.

Finally, the interplay of nonlinearity and attenuation in biological media is studied in the context of medical ultrasound. First, a numerical method is developed. The method solves the constitutive relations for nonlinear acoustics and the frequency power law attenuation of biological media is modeled as a sum of relaxation processes. A new technique for reducing numerical dispersion based on artificial relaxation is included. Second, this method is used to study the harmonic balance as a function of the power law, showing the role of weak dispersion and its impact on the efficiency of the harmonic generation in soft-tissues. Finally, the study concerns the nonlinear behavior of acoustic radiation forces in frequency power law attenuation media. We present how the interplay between nonlinearity and the specific frequency power law of biological media can modify the value for acoustic radiation forces. The relation of the nonlinear acoustic radiation force with thermal effects are also discussed.

The broad range of nonlinear processes analyzed in this Thesis contributes to understanding the behavior of intense acoustic waves traveling through complex media, while its implications for enhancing existent applied acoustics techniques are presented.

Link to the full document: http://goo.gl/zv1vYO

Local News

2016 Underwater Acoustics and Sonar Systems Course. From 10th April 2016 – 17th April 2016 in UK



This course has taken place every year since 1974 and during that period has trained a large proportion of the senior engineers and managers active in the field of underwater technology. The course is designed to provide a solid grounding in the fundamental principles of acoustics and sonar systems. Thus scientists, engineers and managers will be able to adapt to the evolving needs of the underwater community. The fundamental core content is supplemented by a wide range of guest lecturers with significant experience of working in leading-edge research. The course takes place on Isle of Portland in Dorset (the spiritual home of military sonar developments within the United Kingdom).

Course Fees:
Bookings before 6th February: **£3100**
Bookings 6th February -11th March: **£3250**
Bookings 12th March - 8th Apri:l **£3550**

How To Apply
Applications for admissions to this course should be made using the University on-line booking and payment system: http://shop.bham.ac.uk/



There will be an EAA Summer School in Oporto

As you may know, EuroRegio 2016 is the 9th Iberian Acoustics Congress and will take place in Porto (Portugal) next year on June the 13-15th. The European Acoustic Association together with the collaboration of the Young Acoustician Network is organizing a Summer School on Acoustics aimed at students and young professionals who are interested in learning more and deeper about acoustics. Here you can see an advancement of which courses there might be:

http://www.spacustica.pt/EuroRegio2016/english/summer_school.html



The YAN is organizing the accommodation and parallel activities for you. Please, choose your interests in the EAA Summer School, about the courses, social events, academic events, accommodation, so we build the best Summer School program suitable for you. Up to date there are 19 responses in this questionnaire.

Be Active in the YAN and participate!

https://goo.gl/oEa95H

Open Positions

1) Research fellow in machine listening, University of Surrey, Guildford (UK)
https://jobs.surrey.ac.uk/Vacancy.aspx?ref=079715
2) Research intern, Oculus Research, several locations in the US
https://www.facebook.com/careers/resume?dept=intern-engineering&req=a0I1200000G5Em3EAF
3) Werkstudent Audio-Software-Entwicklung, Sonic Branding, Berlin (DE)
4) Research fellowship, Cluster for excellence Hearing4all, University of Oldenburg (DE)
http://hearing4all.eu/EN/Media/News/H4A_fellowship_2016.php
5) Post-Doc, Audio Branding, IRCAM, Paris (FR)
6) PhD in Perception of auditory motion during head movement, Cardiff University (UK)
http://psych.cf.ac.uk/degreeprogrammes/postgraduate/research/docs/School%20Freeman.pdf
7) PhD on neural networks for speech enhancement, University of Southhampton (UK)
http://goo.gl/oMNsGW
8) Research Fellow in Semantic Audio-Visual Processing and Interaction
http://jobs.surrey.ac.uk/079415
9) PhD position in music acoustics, University of Music and Performing Arts Vienna (AT)
http://ec.europa.eu/euraxess/index.cfm/jobs/jobDetails/34050633
10) Post Doc in music acoustics, University of Music and Performing Arts Vienna (AT)
http://ec.europa.eu/euraxess/index.cfm/jobs/jobDetails/34050632
11) Internship in audio, speech and language, Mitsubishi Electric Research Labs, Cambridge, MA (US)
http://www.merl.com/internship/openings.php
12) Research engineer, Dolby, Beijing (CN)
https://career4.successfactors.com/career?career_ns=job_listing&company=Dolby&navBarLevel=JOB_SEARCH&rcm_site_locale=en_US&career_job_req_id=16241&selected_lang=en_US&jobAlertController_jobAlertId=&jobAlertController_jobAlertName=&_s.crb=zoY8TUi44TsN0iqG5cmLrkztsUc%3d
13) PhD Vacancy and Grant, The DUCK Project, University of Ghent, Belgium (BE)
14) Acoustic consultant, AWTechnical, Doha (QA)
www.awtechnical.com

Please refer to the **yan-news@euracoustics.org** mailing list for more details.

EAA YAN

email: yan@euracoustics.org
web:https://www.euracoustics.org/activities/young-acousticians-network

If you wish to stop receiving this newsletter, or cancel your membership, please contact the EAA yan chair at this email address.