Young Acousticians Network Newsletter #69 September 2018

Newsletter's Summary

Board's Highlights

NEWS

Back to work!
Let's go through what will happen **during the upcoming year** in the acoustics community.

page 4

AERO AC

One of the publis is about **numerical aeroacoustics** and **beam forming** on **simulated results**: a rather unusual technique you might want to check out!

page 6

Upcoming Events

September 2018

4th - 6th — 2nd International Symposium on Biotremology. Riva del Garda, Italy.

11th - 14th — **PGSCA 2018** — 3rd Polish-German Structured Conference on Acoustics. Utska, Poland.

17th - 18th — 12th DEGA Symposium on Interdisciplinary Topics in Acoustics: Physiology and Virtual Reality. Aachen, Germany.

4th - 6th — **AAAA 2018** — 8th Congress of the Alps Adria Acoustics Association. Zagreb, Croatia.

October 2018

4th - 6th — Auditorium Acoustics 2018. Hamburg, Germany.

24th - 26th — **FIA 2018/TECNIACÚSTICA 2018** — 49th Spannish Congress of Acoustics, 10th Iberic Congress of Acoustics, 11th Iberoamerican Congress of Acoustics, Cadiz, Spain.

29th - 31st — **FCAC 2018** — 2nd Franco-Chinese Acoustic Conference. Le Mans, France.

November 2018

7th - 9th — **SAM 2018** — Symposium on Acoustic Metamaterials, Xàtiva, Spain.

Upcoming Deadlines

September 2018

10th — 12th DEGA Symposium on Interdisciplinary Topics in Acoustics: Physiology and Virtual Reality. Aachen, Germany. **End of registration**

12th — SAM 2018 — Symposium on Acoustic Metamaterials. Xàtiva, Spain.
End of registration

15th — FCAC 2018 — 2nd Franco-Chinese Acoustics Conference. Le Mans, France.
End of early registration

October 2018

15th — FCAC 2018 — 2nd Franco-Chinese Acoustic Conference. Le Mans, France.
End of registration

Join the Team

The YAN is always looking for new (board) members!

We are looking for more **local representatives** and a few **board members**!
If you think what we are doing if useful and you would like to be part of the adventure, send us a mail at:

yan@euracoustics.org

Local News

Happy new (academic) year !

After this hot and relaxing summer break, we are finally back! Last year saw a few changes in the YAN with a few new board members and we will try to go a little further for the next one.

In Heraklion, during the annual board meeting, it was decided to work more closely with the local representatives. If we want fresher news, better job opportunities for you and interesting publications, we need to strenghen the network evermore.

You've been many, in Heraklion, to join the social event and share with us your thoughts and feelings about us and our action. We will try to comply with your wills and be as efficient as possible.

We are also working on giving more visibility to publications featured in the YAN newsletters. More on that will be announced in the upcoming weeks.

In 2018-2019, we will have other opportunities to meet again!

The EAA is organising a **Winter School in Le Mans**, France on **Computational Acoustics** (December 10-14 2018). A series of graduate-level lectures and practicals covering many techniques (FEM, FDTD, ray-tracing, etc...).

Read more at euracoustics.org/WSCA

In 2019, **Internoise will go to Spain** for a 48th edition of this famous International Congress and Exposition on Noise Control Engineering. This will take place mid-June in Madrid. Note that for this conference, **20 grants** will be awarded to young acousticians.

More at internoise2019.org
& internoise2019.org/young.html

In a year from now, the YAN will also be present at the **International Congress on Acoustics** (aka. ICA 2019, September 9-13) in Aachen, Germany. Besides ICA 2019, the **EAA Summer School for Young Acousticians** will be organised in Leuven, Belgium (6-8 Sept., 2h away from Aachen).

More at ica2019.org
& ica2019.org/eaa-summer-school

Publish here!

July and August newsletter was special, but the usual **Publications section is now back to normal** !

You have a **recent publication** you're especially proud of?
Don't hesitate and send us:

The abstract
A link to the full text
A short bio about you
Your nicest picture
A contact address

yan@euracoustics.org

Job Announcements

Acoustic Consultant at Irwin Carr Consulting. Belfast, Ireland.

Junior Project Engineer Acoustics & Vibrations at Tractelbel – ENGIE Group. Brussels, Belgium.

Engineer Acoustics & Flow Indiced Pulsations at DNV GL. Groningen, Netherlands.

Senior Acoustics Consultant at AECOM. St Albans, United Kingdom.

Acoustics Consultant at Capita. London, United Kingdom.

Staff Scientist in Acoustics and Hearing Technology at Danmars Tekniske Universitet. Kongens Lyngby, Denmark.

Project Engineer – Audio – Automotive at Dyson. Hullavington, United Kingdom.

NVH Engineer at ZF Group. Bielsko-Biala, Poland.

Senior NVH Engineer at ZF Group. Solihull, Poland.

Publications

Identification of noise sources on a realistic landing gear using numerical phased array methods applied to computational data

The aerodynamic sound sources on a realistic landing gear are investigated using numerical phased array methods, based on array data extracted from compressible Detached-Eddy Simulations of the flow. Assuming monopole or monopole in a moving medium propagation, the sound sources are identified in the source region through various beamforming approaches: dual linear programming (dual-LP) deconvolution, orthogonal beamforming and CLEAN-SC. The predicted source locations are in good agreement with previous experimental results performed on the same nose landing gear configuration by industrial and academic partners within the ALLEGRA project. Additionally, the modeled sources are used to generate far-field spectra which are subsequently compared to the ones obtained with the Ffowcs Williams-Hawkings acoustic analogy. The results of the dual-LP approach show a good match between the far-field spectra up to a certain frequency threshold cor- responding to the quality of the mesh used. The results demonstrate the potential of numerical phased array methods as a legitimate modeling tool for aeroacoustic simulations in general and as a tool to gain insight into the noise generation mechanisms of landing gear components in particular.

About the author

Hamza was born in Casablanca, Morocco where he studied until the end of his Preparatory Classes. He moved to Nantes, France, by gaining entrance into the well known École Centrale de Nantes. He then enrolled into the Top Industrial Managers of Europe Double Degree program with KTH in Stockholm, Sweden. There, Hamza followed the Aeronautics track within the Vehicle Engineering Masters program at the end of which he handed his thesis about beamforming applied to aircraft CFD data. This project was awarded the Best Master Thesis prize by the Swedish Acoustic Association (SAS) and represented KTH in the Pegasus Best European Master Thesis competition that took place in Germany. He is currently a PhD student within the Centre for ECO2 Vehicle Design at KTH, under the supervision of Ciarán O'Reilly and Peter Göransson. His research focuses on the Lifecycle Energy Optimisation method, where he leverages multidisciplinary design optimisation approaches to enable sustainable early-stage vehicle design.

INFOS

Author: Hamza Bouchouireb *et al.*
Affiliation: ECO2 Centre for Vehicle Design, KTH Royal Institute of Technology, Stockholm, Sweden
Contact: *hamzab@kth.se*

Read the full publication:

Published in the proceedings of the 23rd AIAA/CEAS Aeroacoustics Conference, 2017. DOI: 10.2514/6.2017-3019

Publications

Determination of nonlinear acoustic properties of perforates using band-limited random excitation

Perforates are used for noise control in automotive mufflers and aircraft engines as well as for other vehicles and machines. Their properties and noise reduction are known to depend on the mean flow field and other parameters such as temperature and acoustic excitation level. It is therefore of interest to understand how the properties of perforates varies with the level of acoustic excitation. Methods for studying nonlinear harmonic interaction effects, for perforates, using single tone excitation and Poly-harmonic distortion models or nonlinear scattering matrices has been studied. These techniques typically require measurements with a number of different acoustic loads. It would be more attractive to directly be able to extract the nonlinear acoustic properties from a more limited set of experiments using either random or periodic excitation. Multi input – single output techniques for nonlinear system identification using broadband random excitation has been tried with limited success. One reason is the mixing of the sound pressure signal incident from the acoustic source with the sound pressure transferred to higher frequencies by nonlinear effects at the perforate sample. The present paper is an attempt to combine band-limited broadband excitation with nonlinear scattering matrices describing the nonlinear transfer of energy to higher frequencies. By analyzing acoustic energy transfer at frequencies at least two to three times higher than the high frequency cut-off for the bandlimited broadband random signal it may be possible to extract information to estimate the parameters of the non-linear scattering matrix.

About the author

Niloofar Sayyad Khodashenas comes from Iran where, back in 2014, she graduated in Electronic & Control Engineering (ECE) at the Islamic Azad University of Lahijan (LIAU, Lahijan, Iran) with a speciality in logical, linear and non-linear control, genetic algorithms and decision-making processes. She later graduated from a Master's Degree in ECE at the IAU North branch, Tehran, during which she was graded First Honor Graduate student in ECE and best bachelor student at LIAU. Her MSc thesis at the Shahid Beheshti University, Tehran involved topics such as robotic and rehabilitation and some of her research efforts on renewable energy led to publications. She is now a PhD student at KTH, Stockholm and part of the Marie Skłodowska-Curie Early Stage Researcher Network (SmartAnswer ITN_ ESR3). She works in the AVE department in a project focused on the identification of non-linear systems in aeroacoustics.

INFOS

Author: Niloofar Sayyad Khodashenas *et al.*
Affiliation: CCGEx, ECO2 Centre for Vehicle Design, KTH Royal Institute of Technology, Stockholm, Sweden
Contact: *nisk@kth.se*

Read the full publication:

Published in the proceedings of Euronoise 2018. ISSN: 2226-5147 pp 2233 — 2238