

Newsletter's Summary

- Agenda**
Get a reminder on upcoming events and deadlines. Feel free to contribute if you become aware of any change!
- News**
This month we've got a review of the YAN panel on INAD 2024 and a great interview with Davide Tomassone of Sergio Tomassone S.r.l..
- Job announcements**
Find your dream job in this fresh list of opportunities! If you wish to announce a position, please email the [YAN team](#).
- Publications**
This month, find a publication by Stephen Schade, "Smart Blade Count Selection to Align Modal Propagation Angle with Stator Stagger Angle for Low-Noise Ducted Fan Designs".

Upcoming Events

- June 2024**
- 05th - 07th Understanding Acoustics
Enugu, Nigeria
 - 10th - 11th BEBEC 2024 Berlin Beamforming Conference
Berlin, Germany
 - 12th - 14th International Conference ACOUSTICS 2024 High Tatras
Štrbské Pleso, Vysoké Tatry, Slovakia
 - 15th - 17th AES Europe 2024 International Convention
Madrid, Spain
 - 17th - 20th ICUA2024 International Conference on Underwater Acoustics
Bath, UK
 - 25th - 28th JBA2024 2nd Emerging Bioacousticians Days
Moulins-Blanc, Brest, France
 - 26th - 28th AES 5th International Conference on Automotive Audio
Gothenburg, Sweden
- July 2024**
- 08th - 11th ICSV30 30th International Congress on Sound and Vibration
Amsterdam, Netherlands
 - 09th - 11th Workshop Guided Ultrasonic Waves : Emerging Methods (GUWEM)
Überherrn, Germany
 - 12th - 15th TOSS2 ACTOR Timbre and Orchestration Summer School
Vancouver, Canada
 - 25th - 27th IBPC2024 9th triennial conference of the International Association of Building Physics
Toronto, Canada
- August 2024**
- 25th - 29th INTER NOISE 2024 53rd International Congress and Exposition on Noise Control Engineering
Nantes, France
 - 26th - 30th EUSIPCO 2024 32nd European Signal Processing Conference
Lyon, France

Upcoming Deadlines

- June 2024**
- 16th - Quiet Drones 2024
Manchester, UK. [Paper submission](#)
 - 28th - Acústica 2024
XIII Congresso Iberoamericano de Acústica - Tecnicaústica 2024. Faro, Portugal. [Paper submission](#)
 - 30th - FIA 2024
13th Iberoamerican Congress on Acoustics. Santiago, Chile. [Abstract submission](#)
- July 2024**
- 10th - IEEE IS2 2024
5th IEEE International Symposium on the Internet of Sounds. Erlangen, Germany. [Paper submission](#)
 - 10th - 2nd IEEE International Workshop on Networked Immersive Audio
Erlangen, Germany. [Paper submission](#)
- August 2024**
- 15th - FIA 2024
13th Iberoamerican Congress on Acoustics. Santiago, Chile. [Paper submission](#)
 - 19th - Acoustics 2024
Manchester, UK. [Paper submission](#)

News

YAN Panel on International Noise Awareness Day

In case you missed it, this year on INAD, YAN organised a panel talk with experts from different fields of acoustics. We had the honour to talk to the following panel:

1. Prof. Christ Glorieux, an expert in physics modelling of acoustic wave propagation, building and room acoustic measurements, psychoacoustics and environmental noise monitoring, in particular around airports.
2. Prof. Gaetano Licitra, currently Director of the Pisa Department for the Environmental Agency of Tuscany Region. He has played a major role in the development of guidelines, including the WHO Night Noise Guidelines, the EEA Quiet Zone Guidelines, and IEC and ISO standards.
3. Prof. Stephen Stansfeld shared his expertise in noise sensitivity, noise and mental health and noise and children's learning. In the past, he directed the European 5th Framework funded RANCH Study on the effects of aircraft and road traffic noise on children's cognition and health and the European Network on Noise and Health (ENNAH).
4. Prof. Jian Kang who worked in the field of architectural and environmental acoustics for 40 years. He is currently working internationally on developing Soundscape Indices (SSID) to improve our environment.

The experts discussed some very intriguing aspects regarding the impact of noise on our life and how standards and guidance need to consider more possible situations such as the type of residential area, the population density, and more importantly, the potential levels of annoyance for the residents by means of calculating combined sources. Some neighbourhoods could be mainly dominated by industrial noise and construction work that can last for years. So, how do we mitigate such situations?

We also gained some insight from Prof. Christ Glorieux on noise around big airports and how the possibility of registering complaints is a meaningful way to help residents cope with the aircraft noise. In practice, this simple action is not always accessible for the affected residents. According to Prof. Stephen Stansfeld, we are not able to become more tolerant to noise because even unconsciously our body still responds to the negative impact of noise such as stress. Thus, we need to find better ways to reduce the noise in our environment.

While there are plenty of solutions to reduce noise, some of these are impractical in urban areas (i.e. noise barriers). Thus, Prof. Jian Kang presented some of the extensive research he has done on using vegetation to reduce noise. We can introduce vegetated surfaces on rooftops or building facades which not only reduces noise but also introduces greening in our cities. And to add on top of that, it would be visually beautifying!

Your opinion on peer-review and indexing of conference proceedings !!

Peer-reviewing and indexing of conference proceedings requires additional efforts by conference organizers, absorbing resources that could otherwise be invested elsewhere. However, these efforts may be very valuable to you, young acousticians, in terms of research output, feedback, and quality assurance.

👉 We are reaching out to you to request your valuable insights and perspectives on this. Your responses will serve directly as input for the European Acoustics Association (EAA).

- <https://forms.gle/LuuhTwPcRwYSAUg>

Interview with Davide Tomassone, the biggest guitar reseller in Italy.

If you are a guitar connoisseur, you might have heard of Sergio Tomassone, the luthier or the shop chain in Italy. Maybe you even had a chance to enter one of their shops and met Sergio (born in 1939 and still doing guitar repairs and consulting every day!) or his son, Davide, in action. Regardless, there are several things that make this place special and, in particular make Davide Tomassone a noteworthy and unique reseller. Despite his job, Davide is also a charted acoustician with an interest in audio equipment and he applies this knowledge within their shops. He is also interested in research, and he is collaborating with people from academia to improve the vast guitar manufacturing industry. Thus, we decided to interview him and share his fascinating story with you all 🎸

INT = Arina Epure, Sebastian Duran
 DT = Davide Tomassone

INT: First of all, thanks for the opportunity of this **beginning. Now, how is acoustics contributing to your business?**

DT: The main impact on the business is with electro-acoustic, considering we have a dedicated shop selling loudspeakers and PA systems. On top of that, the theoretical knowledge leaves the doors open for dreaming.

INT: ... Of?

DT: Dreaming of measuring and quantifying the tone and sound quality of musical instruments. This is what we are starting to investigate at the moment (with Dr Ausiello, University of Portsmouth). Beranek and many others after him collected data from hundreds of venues, defined the acoustical parameters, to lister a vocabulary of values we could eventually correlate to whose environment.

INT: In more recent years Adelman-Larsen completed a very similar research focused on pop and rock venue in EU and North-America...

DT: And he found different values of the same acoustical parameters which correlate better with those music genres. And then he started manufacturing products to support architects and acousticians who need to design such spaces. Another example we can take inspiration from (related to speech intelligibility) is the STI. It was investigated and then became a standard. It's an approximation, but it is grounded in science. In the world of guitars, everything is still up in the air. The tone of an instrument is seen as dependant on who's playing it. Perception and preference are described as completely subjective...Manufacturers are selling dreams more than data. We'd love to reach a point where there were some measurements, some descriptors. Not sterile words as C80, the integral of the first 80 ms of... no chance! That's not telling much to an audience of musicians, they won't buy it! We need a vocabulary which can appeal creative people.

INT: I can buy that!

DT: We need to get inspiration from the food industry, a wine tasting experience for example. A sommelier presenting a wine is capable of telling a whole story about the reality which could be experienced when tastating a glass of wine. Normal people would not necessarily be able to write the same story, but they are surely able to identify those qualities and features in the wine they're sipping. I'd love to see myself capable of replicating this kind of expertise, especially for acoustic guitars and instruments. Having a list of descriptors... of independent dimensions (ref. Soundscape), which would allow an expert to tell the tonal story, to describe the taste of an instrument.

INT: The idea seems so good that it feels almost urgent to work on it before someone else does it...

DT: Somehow some manufacturers are hinting at this. We feel some of "big guys" of acoustic guitar making are developing an interest for this... but we have some doubts about the process. Some manufacturers might not like at all the idea of creating a standard which could, in fact, offer the chance to have a purely objective evaluation of their products against competitors. Maybe what was experimented so far was not enough to produce a solid correlation which could be taken as a standard. There is a lot of variables involved, starting from the player, who's not a mechanical device capable of replicating identical gestures on demand, for example. Some players use a pick, some use their fingers or nail, all these aspects alter dramatically the tone of an instrument.

INT: The excitement of the strings might not even be linear...

DT: You're using a very accurate and technical term, but yes, that's part of the problem as well. I guess manufacturers have to include, in their design, some considerations regarding the final artistic use of the instrument, which is analogous to say that a venue is designed with different targets of the acoustical parameters depending on the type of music (or speech) which might be required to host. The biggest step, in my opinion, is to prune the complexity of the problem and find the smallest number of parameters which are truly relevant and, at the same time, capable of covering most of the qualitative tonal nuances we have to deal with. Even if our technology is much more advanced than what Beranek could rely upon, in my opinion this will take us longer.

INT: Beranek dealt with a restricted number of people, designers and architects, who were trying to describe the sound of a venue. In this case it's different

DT: The number of users of acoustic guitar (not to mention other instruments) is 100-folds... even more. We're talking about million and millions of players. Long story short, this is a huge curiosity and, in my opinion, a whole new field of investigation in acoustics worth investing into.

INT: Other aspects you think should be considered when investigating musical instrument from the perspective of acoustics?

DT: Ludo (Dr Ausiello, University of Portsmouth) and I had several conversations regarding manufacturing over the past years. Considering my role as a retailer, I don't have much visibility of what manufacturers do or experiment with. New materials, new designs... it's not part of our daily business. We're not part of Martin, Taylor, Gibson, Yamaha, so we don't have a direct contact with this aspect of research. Surely, new materials land on the market, and they did in the past: carbon fibre amongst the many. We don't have the capability to measure mechanical parameters such as stiffness, mobility, and so on though. And in general artisans don't have the means as well.

INT: It must also be noted that artisans learn process reluctant to accept novelty...

DT: Spot on! Last week I went to Pieve di Cento, where there is a good luthier school, with good teachers and plenty of students. Together with my father we spent the day telling the story of the business, discussing building techniques, and what not. In an institution such as that one, you have the complete panorama of the traditional methods, from templates to parts, working with jigs and hand tools, everything... We spent hours describing the same story I briefly told you at the beginning. Several decades of change, of adapting to the needs of players from the acoustic guitars to the electric ones. At the end we asked teachers and students how they see the future of guitar making. The answer was silence. Nobody is thinking of the future.

INT: That was sad was related to the past. Nobody seemed to think out of the box. Students (and teachers) were barely discussing about the possibility of using CNC machines to work wood in a repeatable way. To be really honest with you, if I think of the basics of electronics that I had to explain to my customers when selling an amplifier head to be matched with a cabinet of the proper electrical impedance (I'm talking about the '90s) and I think of the art of luthiery now... I must admit that there is still a lot of misinformation and lack of knowledge everywhere, from manufacturers, to sellers, to final users. There is a lot of work to do to educate all people involved in this economic sector. When I started selling acoustic guitar I literally had to explain customers the difference between solid wood and plywood. The usual conversation a distributor of a brand could engage with was about the colour of the tuner! (he laughs). I'm a bit too harsh maybe, but the sector has flourished with the star system connected with the guitar heroes of the sixties and seventies. My father, Sergio, was a curious man. He eventually decided to steer the business toward the retail side instead of keeping the production as his main focus after visiting the Yamaha factory in Japan, after seeing with his own eyes how Fender and Gibson were running their businesses in the US. Most people don't go that deep into the nature of guitar making, but they remain at a superficial level, what looks cool, what is used by whom, etc. And this holds true also amongst piano manufacturers, with the exception of Fazioli, who really investigated and invested time and effort in researching how to improve the instrument with the aid of science.

INT: Knowledge is always added value to improve products.

DT: It is so relevant when knowledge is used in a constructive way to improve the products. With musical instruments applied acoustics is what makes the difference. In the past, Innovation was a mere trial and error... and what worst! I know of those acoustic guitars (from the '60s) with adjustable bridges whose mechanical impedance mismatch and added mass were so much detrimental to the sound of the instruments.

Another topic of endless myths and discussions is varnish and types of finishes: when I started I heard stories such as "transparent lacquer sounds good, black varnish sounds dark and bad", and nobody was discussing the real culprit, which is the thickness of the finish! This was not misinformation fuelled by few resellers, on the contrary, it was "common knowledge", unfortunately totally wrong and lacking any foundation of truth. In all these aspects, I try to keep my curiosity as vivid as possible.

INT: And in the end you keep on studying...

DT: The day my curiosity will fade, I'll retire. Acoustics is my thing. I have so much to manage within the business, but acoustics is what I read about in my free time, while I'm off on a Sunday afternoon. On my bedside table I have my copy of Beranek's book, my Spagnolo (not a Spanish language book, the Italian applied acoustic textbook), I'm not a Dr engineer, I know DT. Quite intriguing ideas indeed... I'm curious about this type of environmental recordings and measurements of multi-channel audio. Audio Technica sells a multi-capsule microphone which I'd love to buy and connect to a Zoom 8 channel interface to record and learn how to visualise sound intensity, a way to investigate source localisation and the direction from which sounds arrive to the listening point. A few years ago, something like this was simply impossible, both in terms of cost and practically. An intensity measurement done with this probe requires too many measurements and time. With this new technique we'd love to find a practical approximation of a measurement of room impulse response over 360 degree in space. Stuff only researchers were tinkering with, now is made possible thanks to new microphone and signal processing technology. But these are just funny ideas.

Job Announcements

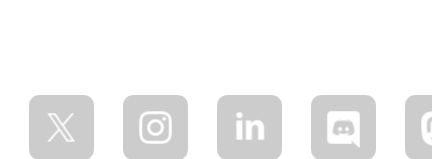
- Acoustics-Vibration Scientist**
WSP Ireland.
Naas, Kildare, Ireland.
- Audio Architect**
Jabra. Ballerup, Denmark
- Research Associate - Deep Learning for Speech and Audio Coding**
Fraunhofer IIS Erlangen, Germany.
- Acoustic Consultant - Various Levels**
Quantum Acoustics. London/Surrey, UK.
- PhD in Acoustic Liners**
Institut Pprime Poitiers, France.
- Underwater Acoustics Jr. Engineer**
Heerema Marine Contractors.
Leiden, Netherlands.
- Research Associate - Audio and Media Technologies**
Fraunhofer IIS, Erlangen, Germany.
- Graduate Acoustic Consultant**
Scotch Partners. London, UK.
- PostDoc in Psychophysics/Hearing Modeling**
IRCAM. Paris, France.
- Doctoral scholarship - Urban soundscape**
University of Antwerp. Antwerp, Belgium.

Publications

Smart Blade Count Selection to Align Modal Propagation Angle with Stator Stagger Angle for Low-Noise Ducted Fan Designs

The rotor-stator interaction noise is a major source of fan noise. Especially for low-speed fan stages, the tonal component is typically a dominant noise source. A challenge is to reduce this tonal noise, as it is typically perceived as unpleasant. Therefore, in this paper, we analytically, numerically and experimentally investigate an acoustic effect to lower the tonal noise excitation. Our study on an existing low-speed fan indicates a reduction in tonal interaction noise more than 9 dB at the source if the excited acoustic modes propagate parallel to the stator leading edge angle. Moreover, a design-to-low-noise approach is demonstrated in order to apply this effect to two new fan stages with fewer stator and rotor blades. The acoustic design of both fans is determined by an appropriate choice of the rotor and stator blade numbers in order to align the modal propagation angle with the stator stagger angle. The blade geometries are obtained from aerodynamic optimization. Both fans provide similar aerodynamic but opposing acoustic radiation characteristics compared to the baseline fan and a significant tonal noise reduction resulting from the impact of the modal propagation angle on noise excitation. To ensure that this effect can also be applied to other low-speed fans, a design rule is derived and validated.

About the Author



Stephen Schade is an early career acoustic researcher based in Berlin. He received his B.Sc. and M.Sc. degree in aerospace engineering from Stuttgart University. Currently, he is working at the German Aerospace Center in the Department of Engine Acoustics. His research focuses on the acoustic design of low-speed ducted fan stages for small airplanes. Moreover, he is working on virtual flyover simulation and auralization tools. He is the project lead of the DLR-funded project, VIRLWINT since 2023 where psychoacoustic characteristics of distributed propulsion systems for urban air mobility airplanes were investigated.