# NOISE/NEWS INTERNATIONAL

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2018 June

*A quarterly news magazine and online digital blog published by I-INCE and INCE-USA*

# NOISE/NEWS INTERNATIONAL

*A quarterly news magazine in PDF format with an Internet supplement published by I-INCE and INCE-USA*

**Volume 26, Number 2** **2018 June**


## Features



## Departments



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# NOISE/NEWS INTERNATIONAL

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## I-INCE

The International Institute of Noise Control Engineering (I-INCE) is a worldwide consortium of societies concerned with noise control and acoustics. I-INCE, chartered in Zürich, Switzerland, is the sponsor of the INTER-NOISE Series of International Congresses on Noise Control Engineering, and, with the Institute of Noise Control Engineering of the USA, publishes this quarterly magazine and its Internet supplement. I-INCE has an active program of technical initiatives, which are described in the Internet supplement to NNI. I-INCE currently has fifty-one member societies in forty-six countries.

## INCE-USA

The Institute of Noise Control Engineering of the USA (INCE-USA) is a non-profit professional organization incorporated in Washington, D.C., USA. The primary purpose of the Institute is to promote engineering solutions to environmental noise problems. INCE-USA publishes the technical journal, *Noise Control Engineering Journal*, and, with I-INCE publishes this quarterly magazine and its Internet supplement. INCE-USA sponsors the NOISE-CON series of national conferences on noise control engineering and the INTER-NOISE Congress when it is held in North America. INCE-USA Members are professionals in the field of noise control engineering, and many offer consulting services in noise control. Any persons interested in noise control may become an Associate of INCE-USA and receive both this magazine and *Noise Control Engineering Journal*.

## *NNI* and Its Internet Supplement

**www.noisenewsinternational.net**

The primary change in this PDF-only volume of *NNI* is the ability to have "hot links" to references, articles, abstracts, advertisers, and other sources of additional information. In some cases, the full URL will be given in the text. In other cases, a light blue highlight of the text will indicate the presence of a link. At the end of each feature or department, a light blue back to toc will take the reader back to the table of contents of the issue.

The Internet supplement contains additional information that will be of interest to readers of *NNI*. This includes:

- The current issue of *NNI* available for free download
- *NNI* archives in PDF format beginning in 1993
- A searchable PDF of annual index pages
- A PDF of the current *NNI* conference calendar and a link to conference calendars for worldwide meetings
- Links to I-INCE technical activities and I-INCE Technical Reports

# From the President of I-INCE

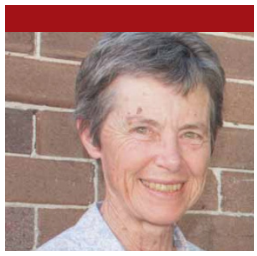
A major activity for I-INCE is the organization of the annual congress, and INTER-NOISE 18 is approaching, to be held from August 26 to 29 in Chicago. A large number of abstracts have been received, with the full papers due by June 1. The date of June 1 is also the end date for early-bird registration, after which the normal registration fee applies. All authors are reminded that a congress registration must be received for inclusion in the technical program.

While it is important to look to the future by encouraging young professionals embarking on a career in noise control engineering, it is also important to recognize the achievements of some of the leaders of past decades. At INTER-NOISE 16 in Hamburg, a memorial session was held remembering the work of Manfred Heckl (1930–1996). Heckl was a pioneer in the development of many techniques that have now become regularly used tools, such as Statistical Energy Analysis (SEA). In addition to many of his other initiatives, he was aware of the importance of good education and produced films to aid in teaching about complex vibrations. In those earlier days, such films required considerably more effort than today, when we have so many graphic aids. Heckl was truly a pioneer in noise control engineering, and the papers that formed the memorial session for Heckl at INTER-NOISE 16 have been brought together in the form of a single downloadable file, now available at http://www.internoise2016.org/program/manfred-heckl/. We are grateful to the German Acoustical Society (DEGA) for arranging the session, inviting the contributors, and making this consolidated booklet available as a fitting record of the achievements of Manfred Heckl.

INTER-NOISE 2018 will also have a memorial session, with a series of invited presentations recognizing the contributions of Bill Lang, one of the few original founders of I-INCE. The I-INCE owes a great debt to Bill Lang, who continued working to enhance the organization until shortly before his passing. The special session will provide an opportunity to discuss contributions by Bill Lang to I-INCE and noise control engineering, and the papers from this session will provide a fitting record of this history for the future noise control engineers.

The accompanying editorial by Patricia Davies, Vice President Technical Affairs, summarizes other activities supported by I-INCE. These activities require preparation and planning well in advance of the annual congress, and we are fortunate to have had Raj Singh to set the framework during his terms in the position and now Patricia Davies to implement and expand these programs. I-INCE is always keen to receive suggestions for further technical activities that will contribute to our goals in regard to enhancing noise control engineering.

Marion Burgess
President, I-INCE



***Marion Burgess***

# From the I-INCE Vice President for Technical Activities

I-INCE has started many new initiatives over the past few years that come under the Technical Activities portfolio. Raj Singh, my predecessor, has done an outstanding job, particularly with the focus on the education and mentoring of students and young professionals. During our formal education, we learn many things, but sometimes putting them into practice can seem daunting because of complexity, constraints, costs, durability, and negative impacts on machine performance. We are sometimes given a noise problem to solve that is not in our own core area of expertise, and we must educate ourselves on good strategies to approach this new noise problem. This is both exciting and challenging, particularly when you are at an early stage in your career and don't yet have those experiences where you have successfully navigated the unknown!

The I-INCE Plenary Lecture Series started last year with Paul Donavan's lecture on tire noise at INTER-NOISE 2017 in Hong Kong, which now has been turned into a YouTube video (http://i-ince.org/lectures.php). The idea is to gradually build up a library of videos that can inform people about different aspects of noise, its effects, and its control.

This year I-INCE is also piloting a Noise Control Engineering Practice School on the Sunday prior to INTER-NOISE 2018 in Chicago, where undergraduates, graduate students, and young professionals can learn about successful noise control projects from four experts working in the field. This school is in addition to the conference attendance grants, opportunities for networking, and workshops for young professionals that have become a regular part of INTER-NOISE Congress activities. These young people are the future of noise control engineering, and it is good that I-INCE has been proactive in finding ways to help them as they complete their formal education and embark on their careers.

I recently attended the ASA Summer School. There, the students who were attending heard, over the course of two days, one-hour talks from researchers working in many different aspects of acoustics. It was excellent: frogs, mammals, bubbles, wound cleaning and healing, cancer treatment, ocean dynamics, materials, signal processing, sound quality, sound and machine design—all connected by acoustics! It was such a pleasure to meet the students and hear about what they were doing. So I am optimistic that our new venture in Chicago is a great thing.

We need to reach out and work with the broader community so that sound is an integral part of early machine, environment, and space design—and is revisited continually throughout the design process. The noise control and acoustic consultants community has the expertise to make things better, but it is as though we are waiting for an invitation to the party, one that either doesn't come or arrives too late. I struggle with this every time I go to a noisy restaurant or sit in a conference room listening to HVAC Symphony no. 405. How can we educate ourselves and others so that people naturally include sound or quiet in their vision for how a space or a product should be?

Patricia Davies
INCE Vice President for Technical Activities

***Patricia Davies***

# Editor's View

Welcome to the June issue of *Noise/News International*. This issue features articles on the ICAO balanced approach to aircraft noise and how it is being addressed in Europe, as well as a case study of off-peak hours deliveries in Stockholm. We also have some advice from the editor of the *Noise Control Engineering Journal*, Jim Thompson, on how to write a successful journal paper.

I'm sitting down to write this editorial having just submitted a paper for INTER-NOISE 18 in Chicago. I hope to see you there—and please feel free to stop me and let me know your thoughts on the *NNI* blog and magazine. I would be eager to hear any and all ideas. In my opinion, opportunities for face-to-face meetings and chatting to colleagues in an often-informal setting is really what a conference is all about. The first conference I attended was EURONOISE 2006, in Tampere, Finland. At that time I was a PhD student, but I met a colleague who eventually was instrumental in my obtaining a postdoctoral research fellowship—and so my academic career began! So if you are going to Chicago, my advice would be to talk to whomever you happen to sit beside, because you never know what might come of it!

As ever, we have updates from all around the world in our NOISE/NOTES feature. There was an interesting audio illusion that went viral recently—check it out, if you haven't already.

Eoin A. King, PhD
@NNIEditor

***Eoin A. King, PhD***

# The Turkish Acoustical Society

The Turkish Acoustical Society (TAKDER) was founded in 1992 with the participation of members from various universities. The society aims to establish communication and cooperation among those engaged in research and application in various fields of acoustics. It also aims to inform the public about acoustics issues. Other objectives of the association include the following:

- to enable communication between people working in various fields of acoustics, to enhance the effectiveness of scientific studies
- to establish communication between people and to introduce issues about acoustics by organizing seminars, symposiums, congresses, and other events
- to contribute to knowledge transfer in the field of acoustics by means of magazines, brochures, books, and other publications
- to establish communication and cooperation between relevant national and international associations and organizations
- to support people and institutions working in acoustics-related fields
- to carry out activities to ensure coherence and consistency in the language used in different sectors (universities, companies, governmental agencies, etc.) in relation to acoustics fields
- to support progress on standardization and regulation

TAKDER has about 150 members, ranging from academics to government officers and from students to acoustic consultants. It also has membership status in the European Acoustics Association (EAA), the International Institute of Noise Control Engineering (I-INCE), the International Commission for Acoustics (ICA), and the International Institute of Acoustics and Vibration (IIAV). The society organized INTER-NOISE 2007, the 36th International Congress and Exposition on Noise Control Engineering, in Istanbul, hosting about 1,000 delegates from around the world.

TAKDER organizes a biannual National Acoustics Congress, and the 12th National Acoustics Congress and Exposition took place at Izmir Institute of Technology, Urla, Izmir, on September 14-15, 2017. The congress brings together academics, students, local and central government officials, acoustics consultants, and companies, on a productive platform. Every congress has strong sessions on building acoustics, environmental noise, room acoustics, mechanical noise, and acoustics measurements. Each year, new session topics appear according to that year's interests.

In accordance with EAA's call for action about International Noise Awareness Day (INAD 2017), a national noise awareness panel was prepared by Turkish Acoustical Society in Istanbul on April 26, 2017. The panel received a substantial amount of media coverage and hosted many visitors, including local and central government officials and representatives from nongovernmental organizations.

The Turkish Acoustical Society is working hard to improve the quality of national acoustics activities by correcting standards, supporting new regulations, revising old regulations, and standardizing different fields of acoustic practices. The society has launched a new program to develop national specifications for various fields of acoustic practice by bringing together experts in the field and holding relevant workshops.

# NOISE/NOTES

## Eoin A. King, NNI Editor, and Eva Von Dell, NNI Social Media Assistant

NNI is on Facebook and Twitter—we try to keep our readers informed with noise news from all across the globe by highlighting interesting research and projects. Here is a roundup of some of the stories that have been making headlines. Follow @NNIEditor to stay up to date with all noise-related news.

### 3-D Printed Metamaterials for Sound and Vibration Control

Researchers at the University of Southern California have developed 3-D printed metamaterials capable of switching between blocking sound and vibrations and letting them pass through. This is accomplished by putting iron particles in the structure and using a magnetic field to deform the material.

### Is Noise Exposure Becoming the New Secondhand Smoke?

The *Washington Post* recently published a feature article considering the dangers associated with environmental noise exposure. The issue of educating the public on the dangers of noise exposure is compared to the decades it took to educate people on the dangers of secondhand smoke.

### The Intriguing Case of Yanny and Laurel

Every so often a quirky photo, question, or illusion goes viral over the internet. The most recent viral offering is an audio illusion. It's a simple question: What do you hear, "Yanny" or "Laurel"? This question originally appeared on Instagram, but it was then shared widely and inspired the *New York Times* to develop their own audio tool to investigate!

### Ultrasonic Waves Are Everywhere

Live Science recently interviewed Prof. Timothy Leighton, from the University of Southampton in England, to discuss the prevalence of ultrasonic sounds surrounding us.

### The Importance of Audio Quality

Researchers from the Australian National University and the University of Southern California recently published a study describing how audio quality has a significant impact on whether or not people believe what they hear. The paper "Good Sound, Good Research: How Audio Quality Influences Perceptions of the Research and Researcher" was recently published in *Science Communication*. In the study, the researchers played identical conference talks and radio interviews in high- or low-quality audio and asked people to evaluate the research presented.

# How to Write a Successful Journal Paper

## James K. Thompson, PhD, PE, INCE Bd Cert

### Introduction

There are no secrets to preparing an outstanding journal paper. All I can do in this article is summarize my thoughts on what makes a good paper. In the process, I may be able to provide some insights from my lessons learned. As the editor of the *Noise Control Engineering Journal* (NCEJ), I have some experience that will be helpful.

It is important to define what I mean by a journal paper. I mean a refereed paper—some may say reviewed or peer reviewed. Reviewing is typically a requirement of journals. The paper must be read critically by reviewers, most often three, before it can be considered for publication. There are some conferences and other professional societies that perform reviews for collections of papers or other works that are not journals. However, for the sake of this discussion, I will simply use the term "journal papers."

In this article I am going to describe the process of preparing such a paper and provide guidance for successfully navigating the review process, working with the reviewers and the editor.

### Technical Significance

No amount of polishing or outstanding writing will overcome poor technical content. To be successfully received, a journal paper must have original and outstanding technical content. It must contain new insights or developments that are fully supported and documented. The technical content could pertain to new techniques or new applications of existing technology. It could also describe significant technical advancement. But the bottom line is that you must have a sound, well-thought-through technical contribution to your field. Make sure you have done your homework. How is your research different from or better than what others have done?

### Professional Quality

It is important that your paper be of professional quality. It must fit with the expectations of the journal and the journal editor. At a minimum, the paper must be clear and provide a logical presentation.

In most cases the paper begins with an abstract. This section must be focused and easy to read. The abstract is important. It is what people see first and may be all that people use to evaluate your paper during searches. Too many authors treat the abstract as a necessary evil that is insignificant. It is vitally important and can be very helpful for those doing literature searches.

Make sure that your paper provides a good description of goals, what was done, results, and conclusions. This sounds like it is obvious, but many papers are rejected or require major revisions because they do not provide these basic elements.

The illustrations used in your paper are important. They are a critical part of describing what you did and what you found. Clear tables, graphs, and illustrations are critical to a professional paper. Make tables and illustrations clear and easy for the reader to understand. It is important to make sure that the symbols, fonts, and lines are all easily read and clear. I cannot overemphasize this point. One of the most common comments from reviewers is that they could not understand figures or tables and that those elements need to be revised for clarity.

Be sure to credit work done by others. Leaving out an important reference or not acknowledging that you are using work done by someone else is improper and will generate a quick rejection of the paper. On the other side of the coin, avoid overemphasizing what you have done. You do not want it to seem that you are denigrating the work of others.

Conclusions are critical. They must be supported by and flow directly from the results and analysis presented. Do not make conclusions your data does not support. All reviewers would rather you be honest about the limitations of your results than speculate about what they *might* mean. It is important that you make real conclusions based on what your data and analysis have shown. Do not just summarize what was done. It is very disappointing to read a 10-page paper that is well written but then concludes with only a summary of what was done. It is important that you provide conclusions that define what your work means or how it can be used.

Make the paper the best you can. Have others review the completed paper before you submit it. Critical input is far better at this point than coming from reviewers. Remember that if others cannot follow the paper, you have failed. Do not depend on the reviewers to catch errors or to help polish your work. You will only cause them to dislike and possibly reject your paper.

If English is not your first language, ask someone who is better with written English than you are to review your paper. Ask

them to be critical and point out how the English can be improved to make the paper better. Many journals and reviewers will refuse to review a paper if the English is too poor. When it becomes difficult to understand or to distinguish what is meant in critical sections, reviewers will simply reject the paper.

## Getting Started

Begin by choosing a journal. You should select a journal that your paper will fit with naturally and that is widely read by those working in your field. Of course, I hope you choose NCEJ, but there may be other relevant publications for your specific research.

Familiarize yourself with the format and requirements of the journal you choose. Stick to their format. Do not violate their requirements. This is a quick way to get your paper rejected.

Write the conclusions first. This is important since all the preceding parts of the paper must support these conclusions. If you are not sure what your conclusions will be, you are not ready to write the paper.

Once you have good conclusions, make an outline. I know some of you are rolling your eyes or are saying "what a waste of time," but an outline will help you write a better paper. It does not have to be overly detailed. Some writers will be able to put down just a few bullet points. Others will need or want a more detailed outline. Regardless, outlines are a good way to organize your thoughts and provide a road map as you work through the paper-writing process.

## Organization

The basic organization of a journal paper is simple:

- Abstract
- Introduction
- Approach
- Results
- Conclusions
- References

### *Abstract*

This has already been discussed above. Again, an abstract should summarize your work in a clear, focused, and easy-to-read manner.

### *Introduction*

In the introduction, provide an overall, but brief, description of what you are going to present in the paper and offer a literature review. There should be a statement of problem**.** You should describe why that problem is important (but do not try to oversell its value). What hasn't been done before that you are addressing? Offer a critical review of what *has* been done before. What have other authors found? What problems have they encountered? You need to provide evidence of a review of the literature. You do not want to over-reference your own previous work. Make sure your references here and throughout the paper are relevant to what you are doing. Be sure that your literature search is comprehensive. Have you looked beyond your own specific focus area for published research related to an almost identical or an analogous problem?

### *Approach*

The approach is the description of how you approached your problem or investigation. It should describe what you did and how you did it. It should be clear and concise. This is often a difficulty for writers. You need to provide enough information for the reader to duplicate the work—but not so much detail that the reader gets lost in minutiae. The reader should be able to repeat the model development, the analysis, the setup and conducting of experiments, the data acquisition, the data analysis, and other important aspects of your work. Where possible you should reference papers that describe the procedures you have used. Avoid repeating material already available in the literature. If you feel there are some details that are important, consider putting them in an appendix to keep from breaking the flow of the narrative.

### *Results*

There are many ways to present results. I will try to highlight some of the important forms.

Figures are an important part of most technical papers. They should be clear and easy to read. The reader's eyes should be immediately drawn to the data and the effects you want to illustrate. The text associated with a figure is just as important as the data. Choose font sizes accounting for the size of the figure in the published document. Yes, in electronic format the reader can zoom in larger, but you do not want to force the reader to do this. It is best to be consistent with font sizes and text formats for all figures. This prevents the reader from wondering why the fonts changed and if he or she missed an important point. If you use variables in figures, use the same font as in the equations of the paper. This will reduce a lot of confusion.

The captions for figures are important. Figures captions should be concise. You should not try to explain the figure in the caption. Explanations belong in the text. A good caption should be easy to understand and provide a title for the figure, not an explanation of what is being presented. Don't repeat what is in the text.

When you select the scales used on axes, remember that the reader may be comparing figures. You should use the same scales and size of figure when you anticipate the reader may make visual comparisons. If possible, you may want to put these data sets in the same figure to facilitate comparisons. Changing scales can change the look of the data. Don't use a

scale showing all the small perturbations in the data when the point is the overall trend.

The analysis component in the approach may be model analysis or experimental data analysis or a combination of both. Since you are the person most familiar with the data and the analysis performed, you must take care to provide a good explanation for the reader—one that is not overly complex or too terse for the reader to understand. Readers have not internalized the material to the extent that you have; they need to be given a clear path through all its complexity. Relate the results to the objectives of the research. Do not ignore data that does not support your hypothesis. Outliers in the data are like shining beacons to readers and reviewers—you need to address them.

### *Conclusions*

Although located at the end of the paper, the conclusions make or break it. They are the most important part of the paper. The conclusions are really the purpose for writing the paper. It is important to be concise. These should not be long-winded statements. They should be short and to the point. It is your job as the author to focus the reader on the points *you* think are important. You must relate results back to objectives of the research. If possible, avoid repeating the text elsewhere in the paper. Taking whole sections from the abstract or the introduction is not a good idea.

It is important to be realistic with your conclusions. A new noise measurement technique is not going to solve world hunger. Note the limitations of your results and analysis, if appropriate, and describe future work that is needed.

## Working with Reviewers and Editors

### *Publication Steps*

The typical publication process has the following major steps:

- Review (controlled by reviewers)
- Revision (controlled by authors)
- Publication (controlled by publisher)

Each step takes at least one to two months. The process takes some time, and reviewers are always busy. That is why they are good reviewers—they are actively working in the area. You must be patient.

### *Editor's Role*

The editor has a dual role: she or he is responsible for facilitating the publication process and making sure the journal is the best it can be. Thus, the editor facilitates and monitors the publication process from the paper submission to the final publication of the journal. He or she chooses the reviewers or assigns an associate editor. The associate editor will have experience and expertise in the paper topic. Based on the review results, the editor decides on publication.

### *Review Process*

Most publications require two or three reviews. Since reviewers are performing their duties with no compensation and on their own time, they generally take one to two months to complete reviews. The editor must balance the need to provide a speedy process for the author and consideration for the busy schedule of the reviewers.

### *Results of the Review*

As one might imagine, the results of the review process are not always clear-cut. A few of the common results are shown below.

- Approved with minor modifications: Small changes are required to clarify a point or to fix an issue with formatting. The best course for the author is simply to make the requested changes and return the revised paper as quickly as possible.
- Approved with major modifications: In this case, there is a significant problem with the paper that needs to be corrected. It is important that the author take seriously and address carefully the concerns and issues raised by the reviewers. In this case, the editor will send the revised paper back to the reviewers so that they can determine if their concerns have been addressed. The surest way to get the paper rejected is for the author to fail to sufficiently address the modifications recommended by a reviewer. A rejection by just one of the reviewers at this stage will mean the paper is rejected by the editor.
- Rejected: The paper is not considered appropriate for publication. This may be for many reasons, which should be explained with the rejection note. The paper may cover a topic felt inappropriate for the journal. It may not be well organized, or it may not have the required technical content.
- Mixed reviews: Often the editor will get mixed reviews. With three reviewers, there may be two "approved with major modifications" results and one rejection. At this point the editor's judgment comes into the picture. Most editors will go with "accept with major modifications" to give the author an opportunity to redeem the paper. Situations like this are why it is so important to carefully address the modifications recommended and issues raised by the reviewers. The reviewer who originally rejected the paper will be very hard to persuade to change his or her opinion.
- Accepted without revision.

**Revisions if accepted.** As mentioned above, it is important for the authors to be responsive to the input from the reviewers. My experience has been that many authors can feel hurt or disappointed with reviewers' comments. This should not be the case since the reviewers' comments are

the best advice you will get for improving the paper. My suggestion, for new authors especially, is to read through the reviews and privately express (to yourself) your concerns and anger. Then put the reviews aside over the weekend or for a few days. Once you have cooled off, you will be amazed how much milder the comments will seem, and you may even be able to see that they are helpful. I have seen this procedure work successfully many times, so you may want to try it.

It is important to respond in an expeditious fashion. You do not want to lose momentum, and you do not want the editor to feel you are not going to respond. Yes, you may be busy with the next project or paper, but you must respond to get this paper published. Many papers fail to be published because the authors fail to revise and return the paper to the editor. Some journals impose time limits, beyond which the paper is dropped. Remember: The editor is giving you an opportunity. If you can, you should take advantage of it.

**If rejected, what are your options?** If the paper is simply inappropriate for the journal you chose, you can resubmit to another journal that is more in line with the paper's topic. If the paper is found to have technical or organizational shortcomings, you need to address the issues pointed out by the reviewers before resubmitting to the same journal or elsewhere. Remember that the reviewer community is small. If you submit the same paper to another journal without modifications, the chances are high that one of the same reviewers will see your paper. It will then be automatically rejected, and this will not help your reputation. This happens too frequently and is a major negative for reviewers and editors.

**Reviewers are *not* the enemy**. The majority give helpful recommendations. You need to take advantage of these recommendations. Many others reading your paper would have the same comments as your reviewers. If your reviewer thinks what you have done is wrong or is not clear, so would many others who read the paper. Revisions almost always result in a better paper, for which the authors (not the reviewers) get credit. If you have doubts, go with the reviewers. This is especially true for minor points. Arguing about minor points is a good way to lose the editor's support.

Provide the editor with list of responses to reviewers' comments and what was changed in response to comments. Give page numbers (original submitted document and revised one, if different) and positions on the page where changes were made. Make it easy for the editor to see that you have addressed all the reviewers' comments and concerns.

Do not change the paper elsewhere without informing the editor, and try to avoid doing so, anyway. If the editor finds that you have, it makes her or him very unhappy. This should be a converging, not diverging, process. Substantial changes that do not directly address a reviewers' comments will necessitate a re-review and slow the publication process.

**What do you do if you disagree with the reviewers' comments?** Rigid compliance to reviewers' requests is not always required (after all, reviewers can be wrong). However, you not want to pick a fight over a minor point. Find a way of communicating your (strong) opinions gracefully. It may be that you didn't explain things well. Even if what you did was correct, attacking reviewers, or editors, will not help. Reviewers have put a lot of effort in the process and do not respond well to comments that can be summarized as "you are a moron." Cooperation and patience with editors and reviewers always pay off.

## Summary

I hope this has provided a useful guide to developing a successful journal paper. One point that has only been lightly touched is that each paper submitted should be original work. Repeating other publications and plagiarizing, even unintentionally, are wrong and will harm your reputation. Papers should contain new and valuable information for readers. They should be well written and well organized. The review process is helpful to authors. You should take advantage of free and often good advice. Patience and tenacity are virtues in the process of getting published in refereed journals.

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J. Stuart Bolton and Patricia Davies, formerly American editors of the *Journal of Sound and Vibration* (JSV)

Courtney B. Burroughs, formerly editor of *Noise Control Engineering Journal* (NCEJ)

Stephen A. Hambric, ASME, *Journal of Vibrations and Acoustics* (JVA)

George Maling, *Noise/News International* (NNI)

Ralph Muehleisen, Acoustical Society of America Proceedings of Meetings on Acoustics (POMA)

# INCE-USA BOARD CERTIFICATION ANNOUNCEMENTS


## Paul Burge, INCE Bd. Cert.

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The next INCE Board Certification exam will be given at the Chicago Marriott Downtown on **Sunday, August 26,** starting at 8:00 a.m. This will be the Sunday before INTER-NOISE 2018. The deadline for submitting applications has passed, and all applicants who met the deadline should have been notified by the time that this issue of *NNI* is published.

Please be aware that a new set of bylaws was approved at the recent INCE-USA winter Board of Directors' meeting creating a new, independent "Certification Board." This new Certification Board, headed by the INCE-USA Vice President of Board Certification (VPBC), will oversee the board certification process and will be the certifying authority for INCE Board Certifications from this point forward. This Certification Board will operate independently of the INCE-USA Board of Directors with regard to the evaluation and awarding of INCE Board Certification and periodic recertification.

All of the previous requirements for INCE Board Certification will remain the same with one exception. Individual membership in INCE-USA is no longer a requirement to become INCE Board Certified under the new bylaws (although non-INCE-USA members will be required to pay an annual Board Certification Maintenance fee in lieu of individual INCE-USA membership dues).

Finally, I would like to thank Mike Bahtiarian, our past Vice President of Board Certification; the INCE business office staff; and all of the INCE-USA officers and board members and board certification committee members who helped to develop and approve our new independent Certification Board. Expect to see new improvements and benefits to the INCE Board Certification program from our new Certification Board in the near future.

# See You in Chicago for INTER-NOISE 2018!

INTER-NOISE 2018 will be held in Chicago, Illinois, USA, at the Marriott Downtown Magnificent Mile, August 26–29, 2018. We look forward to seeing you there. The theme of the congress is *Impact of Noise Control Engineering*.

INCE-USA will be hosting INTER-NOISE 2018 on behalf of the International Institute of Noise Control Engineering (I-INCE). INTER-NOISE 2018 is also supported by ASME-NCAD. Planned is a full program of technical presentations, an exposition of noise control materials and instrumentation, and the opportunity to establish good networking with peers and others working in the same field.

- Technical papers in numerous sessions spanning many areas of noise and vibration
- A large exposition of noise and vibration control materials, analysis software, and measurement systems and instrumentation
- Two plenary lectures and four keynote lectures spanning major topics in noise control engineering and aligning with the theme of the congress
- A series of short courses on noise and vibration control
- More details can be found on the INTER-NOISE 2018 website: internoise2018.org

Charlie Moritz and Joe Cuschieri, copresidents of INTER-NOISE 2018, and David Herrin and Teik Lim, technical cochairs, are looking forward to your participation and to seeing you in Chicago.

For answers to your questions, send direct email to secretariat@internoise2018.org.



## Plenary and Keynote Lectures

The two plenary lectures will be given by Patricia Davies and Barry Gibbs, while the four keynote lectures will be given by Truls Gjestland, Jean Luis Guyader, Li Cheng, and Amiya Mohanty.

## About Chicago and the Congress Venue

Chicago Marriott Downtown Magnificent Mile is a premier hotel in downtown Chicago with spectacular views and unmatched service. The hotel has over 1,200 rooms and is offering a special rate of $199.00 plus taxes for INTER-NOISE 2018 attendees.

There are 170 award-winning restaurants and endless shopping only blocks away. Nearby attractions include Navy Pier, the Chicago Art Institute, Adler Planetarium and Astronomy Museum, the Field Museum, the Museum of Science and Industry, and many other cultural attractions.

Chicago is a multicultural city encompassing a bustling downtown business district (with some of North

America's tallest buildings) and 77 distinct neighborhoods. Chicago is home to world-class museums, theaters, and numerous musical venues and parks.

Chicago is served by two international airports. O'Hare International Airport is just 17 miles from downtown and is one of the largest airports in the world. It's also North America's major international gateway airport, serving passengers from over 200 destinations around the globe. Midway International Airport is located just 10 miles from downtown Chicago and offers another convenient option for travelers, with over 60 destinations.

Once you're in Chicago, the Chicago Transit Authority (CTA) operates the second-largest public transportation system in the United States and serves not only Chicago but also 40 neighboring communities by rail and bus.

## Registration

Online registration will be available April 1, 2018. Registration fees for participants and students include the following:

- Access to all technical sessions
- Access to the exposition
- Daily coffee service
- Opening and closing ceremonies
- Sunday and Wednesday evening receptions

## Language

The official language of the congress is English.

## Registration Fees

| | EARLY | REGULAR | ON-SITE |
|---|---|---|---|
| **Delegate** | USD 680 | USD **750** | USD **800** |

| | | | |
|---|---|---|---|
| **Student** | USD 100 | Additional Paper | USD 100 |
| **Accompanying Persons** | USD **150** | **Additional Proceedings** | USD **70** |
| **Congress Banquet** | USD **125** | *Payment to be made in USD* | |

Students may be asked to present valid student ID when picking up registration materials at the congress.

## Exposition

The Exposition on Noise Control Instrumentation, Materials, and Modelling Tools will be an integral part of the congress. It will open with a reception on Monday, to which all registered attendees are invited. Companies interested in being part of the exposition should contact the congress secretariat (secretariat@internoise2018.org).

# Safe-In-Sound Excellence in Hearing Loss Prevention Award™

Do you work with or for a company that has adopted noise control or developed innovative approaches toward hearing loss prevention? Or maybe you know of such company. If so, help give others a chance to learn from its experience by nominating it for a Safe-in-Sound Award!

Safe-In-Sound Excellence in Hearing Loss Prevention Award™ is celebrating its 10th anniversary, and in celebrating, it has streamlined the award nomination process. Please consider self-nominating or nominating others who have demonstrated by example the benefits of developing or following good hearing loss prevention practices. To start the process, just send a letter of intent describing why the award is deserved by you or the organization you are nominating (i.e., how excellence is displayed in hearing loss prevention) to nominations@safeinsound.us by June 15, 2018.

The Safe-in-Sound Award winning stories are shared and showcased at a special award ceremony and in press releases disseminated to the occupational health and hearing research communities. Those selected will be recognized for their role in improving working conditions in the United States. In addition, representatives of the selected enterprises and organizations will be invited to the Annual Conference of the National Hearing Conservation Association to present their award-winning stories and receive the award.

# Aviation Noise Impact Management through Novel Approaches (ANIMA)

## Dr. Graeme Heyes, Manchester Metropolitan University

Air transport contributes to social and economic development; however, the rate of growth is outstripping technological and operational developments, with the result that increasing numbers of people are exposed to aircraft noise. This is important because aircraft noise has significant implications for quality of life in affected communities, including to cardiovascular and mental health, the ability to concentrate, the ability to sleep well, and emotional wellbeing, including feelings of anger, frustration, and powerlessness.

ANIMA is a large, four-year research project funded (€7.5 million) by the Horizon 2020 Research and Innovation Programme of the European Union that commenced in October 2017, and it aims to address this problem.

ANIMA brings together 22 European partners, including airlines, airport operators, industry regulators, and universities. It differs from other research programmes on aviation noise that focus on lowering noise at source—for example, through technological development in engine and airframe design. Instead, ANIMA looks to reduce the impacts of aircraft noise as articulated by noise annoyance.

ANIMA aims to develop new methodologies and tools to manage and mitigate the impact of aviation noise and improve the quality of life of those who live near airports. Moreover, ANIMA will help coordinate national and EU research activity by establishing a common strategic research road map for aviation noise reduction, through the involvement of a pan-European network of experts and project leaders.

ANIMA
Aviation Noise Impact Management through Novel Approaches

The project comprises a number of objectives. First, it will carry out a critical review and assessment of noise impacts and existing management practices to establish best practice guidelines for the effective management of annoyance beyond the European Noise Directive and the four pillars of the ICAO Balanced Approach:

- Reduction of noise at source
- Land-use planning and management
- Noise abatement operational procedures
- Operating restrictions

In so doing, this research will illuminate how international legislation and guidance surrounding airport noise have been transposed into national legislation and applied by airport operators, thus helping to develop a picture of best practice regarding airport noise and its impacts. The work will also consider lessons that can be learned from other sectors. From this, exemplification case studies will be undertaken to apply the identified best practice at partner airports. The study will also seek to develop a better understanding of annoyance to airport noise (including sleep disturbance) and improve the quality of life of those living in the communities that are impacted by airport noise. It will do this through pilot studies and surveys, by assessing new methodologies to reduce annoyance, and by testing novel and cost-effective solutions for land-use planning. Technology will play a role, with mobile (phone/tablet) applications being developed for the public. The project will also produce a 24/7 Noise Management Toolset to empower nonspecialists with decision support capability and a 24/7 Design Toolset for researchers to better understand airport noise and its impacts.

Importantly, the project outcomes will be disseminated widely and made publically available, including through an Aviation Noise Community Platform and by engaging with communities on the process of mitigating noise (i.e., through interventions under the ICAO Balanced Approach). Other outputs include a common strategic research road map for aviation noise reduction and the establishment of a European Aviation Noise Research Network.

Further information regarding ANIMA can be found on the newly launched website: www.ANIMA-project.eu. To learn more about my research or that of CATE, please email g.heyes@mmu.ac.uk.

# Off-Peak Hours Deliveries: An Acoustic Perspective on the Stockholm Pilot Study


## By Romain Rumpler, Ragnar Glav, and Peter Göransson

## KTH Royal Institute of Technology, Stockholm, Sweden


### Introduction

With continuously increasing urbanization and its associated impact on traffic congestion in major urban areas, a number of "off-peak" initiatives have been implemented over the past decade (see the list of references at the end of this article). Their aim is to shift part of the traffic to less congested periods. Of particular interest is the use of the nighttime window, virtually congestion-free, to respond to environmental considerations, economic opportunities, and the challenge of daytime congestion.

One difficulty with the implementation of off-peak hours deliveries (OPHD) is to convince all stakeholders—shippers, receivers, carriers, customers, and communities—of the cost/benefits trade-off, their distribution, and the potential incentives to be implemented.

The current situation in the City of Stockholm, Sweden, is a complete ban on truck deliveries during the night, between 10:00 p.m. and 6:00 a.m. Given the rapid growth of the city, Stockholm faces increasing congestion issues despite a considerable number of infrastructure investments. The municipality is therefore willing to evaluate the impact of potentially lifting the nighttime ban in the future, and a pilot study and report (Pernestål Brenden et al. 2017) have been made with the objective of identifying potential hindrances and benefits. This preliminary study, involving two heavy trucks (one hybrid electric and one biogas), focused on four aspects: transport efficiency, noise, socioeconomic analysis, and policy, combined with stakeholders' perceptions.

Identified as a key barrier to the OPHD, the impact of noise emissions and the associated methodology used during this pilot study are partly reviewed in this article.

### Methodology

There are three main configurations where noise emissions need to be evaluated in the context of OPHD and their potential nuisance for the citizens: noise emissions outside of the city center (that is, approaching the city via some type of limited-access road), noise emissions while driving in the city, and noise emissions upon delivery (loading and unloading).

For the purpose of assessing all three areas, the vehicles in the present study were equipped with onboard noise-monitoring systems, thus focusing on the source rather than the receiving end of the noise disturbances. For practical reasons a commercial off-the-shelf technical solution was implemented using noise-monitoring systems from Sonitus Systems, Dublin, Ireland. The output data was limited to equivalent sound pressure levels, statistical noise levels, and peak sound pressure level, with both slow and fast time averaging as well as A- and C-frequency weighting. A minimum of one-minute periods was available, while no frequency analysis was enabled at the stage of this pilot study.

The methodology adopted offers an alternative to the stationary approach used, for example, to map noise in the form of heat maps by shifting the emphasis to the source. The impact at the receiver end may then be obtained after postprocessing the source-related data. In order to be able to adapt the noise monitoring to two essentially different configurations—that is, driving or delivering conditions—the two trucks were equipped with two such monitoring devices each, as illustrated in figure 1.

The positions of these units, at the front (between the cabin and cargo space) and at the top rear, are intended to provide information in connection with the driving conditions, the background noise, and the delivery noise. The configurations associated with this hypothesis, tested in the scope of the pilot study, are presented in figure 2.

As an example, in a delivery configuration (identified as a fixed location of the truck and an engine turned off), the rear monitoring device will capture the noise associated with the handling of the delivery goods, while the front unit is intended to provide information on the surrounding background noise in the delivery area.


*Figure 1. Position of the microphones for the noise-monitoring devices mounted on the trucks. "We run hybrid electric in the city, night and day."*

## Sample Results

The monitoring of running vehicles is illustrated in the form of source-focused heat maps, in principle real-time, as in figure 3 for the hybrid electric truck. The delivery routes to the same location are presented for four different nights, all around 3:00 a.m.

For these plots, the absolute level from the front unit, without postprocessing accounting for the rear unit, reflects the levels of noise mostly radiated from the engine. The following may be highlighted:

- The effect of switching to the electric engine when entering the inner city, past the green-dashed line (in particular in the first three plots)
- The obviously defective switch to electric mode (last plot)
- The occurrences of switching back from electric mode (sharp acceleration after traffic light, high speed zones such as bridges, etc.)
- Operator-specific driving behavior and the associated comparison of delivery route choices

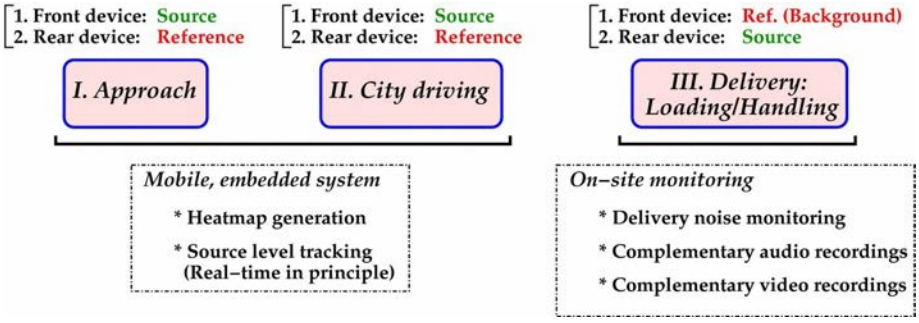


*Figure 2. Methodology for qualitative noise monitoring in all three configurations: long-distance or country driving, city driving, and delivery.*


*Figure 3. Comparative journey to the same delivery point, around 3:00 a.m. on four different days. Green dashed-line delimiting the city center. Qualitative legend from red (high noise emissions) to light blue (low noise emissions).*

The three configurations introduced in figure 2 are detailed in figure 4 on a sample time-averaged monitoring of a complete delivery route: warehouse to two delivery locations (inner city) and back to the warehouse outside of the city.

The three phases are very distinct:

1. ***Approach:*** High noise level at the source (front device), also captured by the rear unit, reflecting the high driving speed on a limited-access road to and from the city center, with the combustion engine.
2. ***Inner-city driving:*** Switch to electric mode while the driving speed is also reduced, triggering a noise reduction of about 17 dB(A) on average at the source. Noticeably, the noise level from the source is only slightly captured by the rear device above the surrounding background level.
3. ***Delivery:*** The front device provides a very good reference level of the background noise surrounding the delivery location, while the rear device monitors the delivery noise. A further derivation provides a noise impact measure of the delivery by a differential indicator between the front and rear units. In particular, in the example provided in figure 4, the second delivery location ("Södra") is obviously a much quieter place by nature, which, somewhat paradoxically, makes it

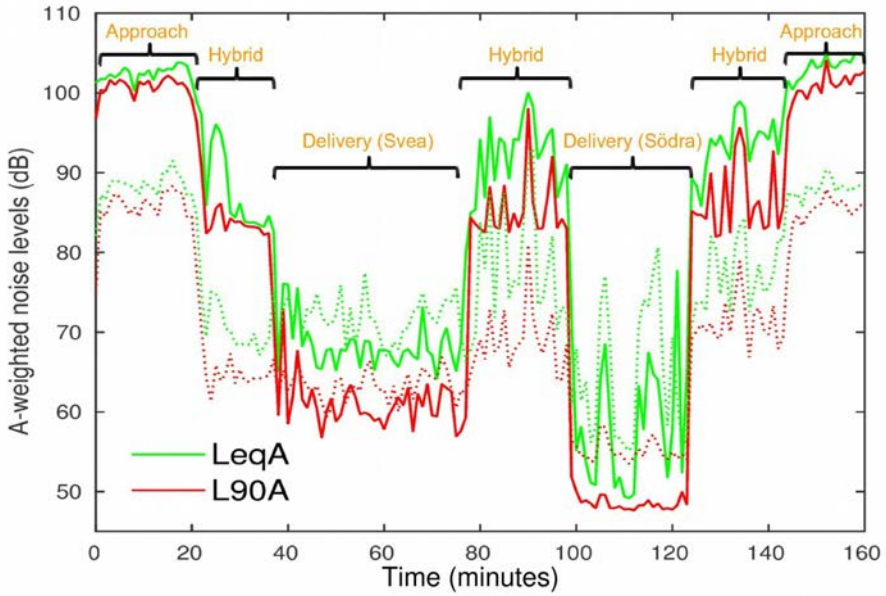


*Figure 4. Averaged-levels monitoring for a complete delivery route, front device (–) and rear device (···).*

a questionable candidate for OPHD if it also corresponds to a densely populated residential neighborhood.

## Conclusions and Ongoing Work

The methodology based on the use of two monitoring devices placed directly on the mobile source (delivery trucks) provides insight into noise generation for the complete delivery route. Further investigation may enable a permit-based authorization for OPHD, a solution currently considered in lifting the total nighttime-delivery ban in the city of Stockholm. It offers the possibility both to dynamically select suitable locations for OPHD and to monitor noise emissions upon allocation of such permits.

In order to bring the concept to a systematic methodology, a continuation of this pilot project, in the scope of the EU project ECCENTRIC, is currently running with increased capabilities, in particular aiming for an extensive amount of measurement data with refined postprocessing possibilities (time-domain, spectrogram, etc.).

## Acknowledgments and Further Details

This project has been funded by the Vinnova program FFI (project no. 2014-05598 and 2015-02338) and has been coordinated by ITRL Integrated Transport Research Lab at KTH Royal Institute of Technology.

Partners involved in the pilot study include the City of Stockholm, Svebol Logistics AB, Lidl Sverige KB, Martin & Servera AB, K.Hartwall Oy AB, Scania CV AB, AB Volvo, and Chalmers.

The Centre for ECO² Vehicle Design (KTH, Stockholm, Vinnova grant 2016-05195) is also gratefully acknowledged for its financial support of the authors.

Off-Peak City Logistics project in Stockholm: http://www.itrl.kth.se/research/projects/off-peak.

EU project CIVITAS ECCENTRIC: http://civitas.eu/eccentric.

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https://inceusa.org/conferences/internoise-2018-chicago-il/

**June 16–19, 2019**
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**August 25–28, 2019**
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