

NOISE/NEWS

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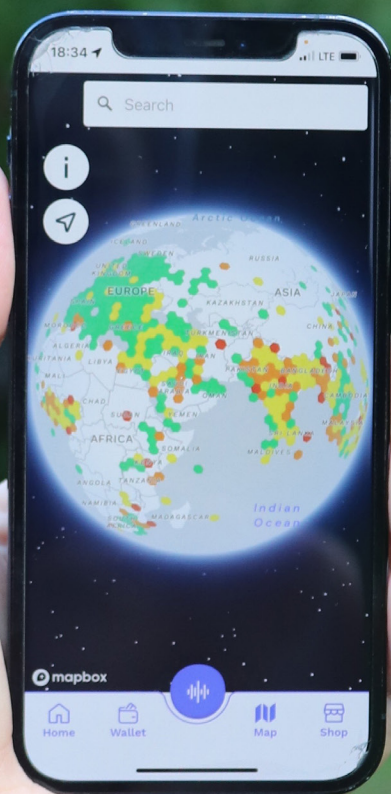
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2023 June

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

■ Noise Control and Diversity, Equity, and Inclusion

■ Introducing Silencio

■ Looking forward to INTER-NOISE 2023



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Volume 31, Number 4

2023 June

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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 blog. I-INCE has an active program of technical initiatives. It 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 nonprofit professional organization incorporated in Washington, DC, 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 blog. 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*.

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- An annual index of issues in PDF format
- A conference calendar for upcoming worldwide meetings
- Links to I-INCE technical activities and I-INCE technical reports

Editor's View

Welcome to the June 2023 issue of Noise/ News International

We're just a couple of months away from INTER-NOISE 2023 in Chiba. It promises to be a great conference, with a whole lot to look forward to (as outlined in this issue of NNI). As it turns out it will be the fourth time an INTER-NOISE Congress has been organized in Japan (Sendai in 1975, Yokohama in 1994, and Osaka in 2011). As such, in this month's 'From the Archives' feature we present the conference report from Yokohama in 1994, almost 30 years ago. Back then the conference theme was "Noise - Quantity and Quality", and attention was paid not only to the level of noise, but those other attributes which affect the listener's reactions, broadly defined as sound quality – probably equally important as today as it ever was!

Also in this issue, we feature two articles from our regular 'What is all the Noise About?' contributor, and NCEJ Editor, Dr. Jim Thompson. With the theme of INTER-NOISE 2023 being "A Quieter Society with Diversity and Inclusion", Jim looks at INCE-USA and the noise control industry relative to diversity, equity, and inclusion (DEI). As Jim notes "this is not politics – it is the future of our profession."

Finally, we have a feature on a new noise measuring App, called Silencio, as well as our usual Noise/Notes feature, which reports on noise control developments all around the world. If you would ever like to contribute to NNI, please feel free to get in touch. We are always interested to hear from our readers!

I hope you enjoy this issue of NNI, and I hope to see you in Chiba, Japan in August!



Eoin A. King Ph.D.

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The Mission of INCE-USA is to disseminate noise control technology. This initiative will make NCEJ more easily available and encourage authors to cite past issues of NCEJ.

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We are eager to receive submissions of quality noise control technical papers and case studies. Publication in our journal provides the opportunity to reach a wider audience as part of an internationally recognized technical publication.

Feel free to contact us at EditorNCEJ@inceusa.org.

For more information on NCEJ go to www.inceusa.org/publications/noise-control-engineering-journal/.

Noise Control and Diversity, Equity, and Inclusion Part 1 – What should we be doing?

By Jim Thompson

With the theme of INTER-NOISE 2023 being “A Quieter Society with Diversity and Inclusion”, I thought it might be a good time to look at INCE and the noise control industry relative to diversity, equity, and inclusion (DEI). What follows are my opinions and experiences. Some of what follows may be controversial, but part of the reason for this column is to generate discussion. I am going to speak from an American point of view, but I think what follows is universal.

Someone recently told me that DEI was not a critical issue. I strongly disagree. DEI is about human rights and that is not politics. Political power does not give the majority or the ruling minority the right to discriminate against or in any other way abuse those in the minority or who are different in any way.

There are too many examples of this abuse of power and its consequences. It was only 150 years ago that 500,000 Americans died to stop some people from being treated as property. Only 80 years ago over 6 million Jews were exterminated due to the insane prejudices of one man and far too many people that went along with him. There are numerous similar examples, and they are continuing at this very moment around the world.

Before someone dismisses this and says these are extremes and do not have anything to do with DEI in noise control or western societies, remember excluding a group or treating them differently is exactly how the holocaust started. There is a cost to a profession and society every time we diminish a group or prevent their contribution.

An obvious example is how Western society has treated women. In many Western countries, it has been less than a hundred years since women have had the right to vote. In most Western societies women have been banned or strongly discouraged from entering STEM fields. Stories like that of Sophie Germain illustrate how difficult it was for women of extraordinary genius to make their mark in science, much less be recognized. Do you think we have overcome these past prejudices and barriers. It is easy to prove this is not the case. Most students in American universities are women. A recent study from the National Student Clearing House Research Center, [CTEE_Report_Spring_2022.pdf](https://www.nscrclearinghouse.org/research/cte-report-spring-2022) ([nscrclearinghouse.org](https://www.nscrclearinghouse.org)), shows over 69% of college students were women in the US. However, they only represent 14% of practicing engineers, [Eng - SWE Fast Facts_Sept 2022](#), and far less than 50% of engineering students. This is only one example. The same holds for many other underrepresented groups.

In my lifetime, I have seen many examples of this discrimination in society related to technology and technical education. I attended a university that had formerly been styled as a technical school with a strong military tradition. Only a few years before I enrolled all the students were white males. On the day of my orientation, my advisor was proud to tell me the school had just enrolled its first black student. For those thinking ahead, yes, he was on the basketball team.

There were two women in engineering in my entering freshman class. One I knew well, she was from my high school. She was much brighter than me and I expected she would do well. Before the year was over, she had transferred to math. The second stuck it out and earned a degree in aerospace engineering.



A few years ago, I was responsible for an engineering team and one of my engineers had worked with a client in India, and we were planning for her to travel there to meet with the customer. The CEO of the company forbade me from sending her. He stated in clear terms that a woman could not handle such an assignment. This was one of the reasons I left the company a little later. In addition, that engineer not only left the company but moved out of engineering completely.

Obviously, there are other groups who have and continue to face prejudice and discrimination. Working on my Ph.D at a different university, I took an applied math class from a professor that taught me more about math than any other I have ever had. He was knowledgeable and great at relating complex mathematical concepts to practical problems. He was originally from Czechoslovakia and spent much of World War II in a concentration camp. He had bad memories of those times and told how he knew he was in trouble when it was mandated that Eigenfunctions would be called Hitler-functions. He called the role at the first of every class for the first few weeks to learn everyone's names. However, he refused to say Asian names, saying they sounded like someone had opened the China cabinet and all the dishes had crashed on the floor. This is the example I remember to illustrate that those who are abused or mistreated can also abuse and mistreat others. I still remember the look on the Asian students' faces the first time he made that statement.

So, you can see why I believe we need to do much more to encourage and support women and other underrepresented groups in noise control. It is much more than saying the door is open. We must help these people to get through the door and support them once they are in. In Part 2, I will talk about the need to provide help and support.

This is not politics – it is the future of our profession. We need the full participation of all members of our society in noise control if we are going to protect hearing and improve the quality of life for everyone. Programs to encourage diversity in education and STEM should be supported and where possible grown. The next time you are at a noise control conference, look at the audience. Is it 50% or even 14% women? How many minority groups are represented? If you were one of those minority groups, would you have the courage to stand up and ask a question? Would you be confident your unique perspective would be heard?

I urge you to reach out to others and help them to be part of our profession. This is not something that would just be nice to do. Our profession depends on your doing this. If we do not adequately represent our society, we cease to be effective in an environment where a much broader range of perspectives are part of the discussion. While some reactionary groups may pause progress, the future is moving toward much broader inclusion. It is a necessity that we are part of this process.



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Noise Control and Diversity, Equity, and Inclusion Part 2 – How are we doing?

By Jim Thompson

In keeping with the theme of INTER-NOISE 2023 being “A Quieter Society with Diversity and Inclusion”, our contributor continues his look at INCE and the noise control industry, to see how we are doing on the topic of diversity, equity, and inclusion (DEI). Maybe it is time to gather some data to better understand how we are doing.

A good starting point is to ask whether the noise control community and INCE are doing enough to support and foster DEI. A fair assessment would probably find that we have made considerable progress, but there is more that could be done. At the same time, I have seen a great improvement in the industry and INCE in the last decade or so. This topic is far too broad to address in this short column. Instead, I will try to relate a few examples and hopeful signs that I have seen.

One shining example to me is the INCE-USA Board of Directors and Officers. In the 1990s when I first served on the Board, it was a group of middle-aged or older white males. The INCE Business Office representative stood out as the only woman in the room. Since then, we have had three women Presidents and now have 10 women among the Directors, Staff, and Officers (a total of 30 individuals). While it is not 50%, it certainly far exceeds the national average of women in engineering which is 14%, [Eng - SWE Fast Facts_Sept 2022](#). We have also done much better

diversifying the group in terms of age, ethnicity, and other aspects. My guess is that the INCE-USA management team is as or more diverse than the noise control community in terms of age and gender. However, there is more to be done. The point is that progress has been made and there is work ongoing toward further improvement.

To balance this perspective, if one looks at the attendees at NOISE-CON 2023, they are predominantly white males. Yes, there is much greater diversity than one would have seen in the 1990s, but looking out from the podium to the audience the exceptions to this characterization are limited. We need to do more.

Before someone gets upset, you are right this is not a problem exclusive to noise control engineering. Looking at engineering in the United States, the representation is only 9 percent Hispanic or Latino and just 3 percent Black or African



American, Engineer Demographics and Statistics [2023]: Number Of Engineers In The US (zippia.com). The most recent

data indicates there are 3 million technical jobs in the US that lack skilled people to fill them. While the numbers may vary, the trend is the same globally. We need technically trained people to fill many roles and to do so we need to focus on DEI. The challenges of the future require the participation of all of society, not just one segment.

So, what can each of us do? We, and I mean all of us, need to reach out to those who are underrepresented in the noise control community. This is more than simply treating people equally; it means bringing new people into the community. It means helping, supporting, and listening to these people. We need to make this a priority not only in position nominations but in how we help and support others. This goes beyond changing the numbers. These people need to have a voice and we need to listen.

The example I like to use is those times in life when you are in another country and don't speak the language. If it were not for that one person who could speak your language, you might not have ever found the right train or the way back to your hotel. I know I have been there, and many of you have as well. That is my analogy to being the only woman or black or hearing-

impaired person on a committee or at a meeting. It is more than just being given a chance. Someone must reach out to the individual and start a conversation or ask how they can help. This is what we all need to do. We need to look for opportunities to do this.

So, even if you are not the INCE president, on the Board, or on the nominating committee, there is an important role for us all to play to help to grow the diversity in INCE and the noise control community. A little effort can have a big impact. I can remember when in a strange place where just having someone point me in the right direction to the subway exit seemed "lifesaving" at the time. Even a small gesture can make a big difference. If we all work on this problem, great strides can be made to make INCE and noise control a much more diverse and representative part of our society.

I would like to hear your thoughts about what we can do or what we can do differently. Please let me know how we can do a better job of DEI.

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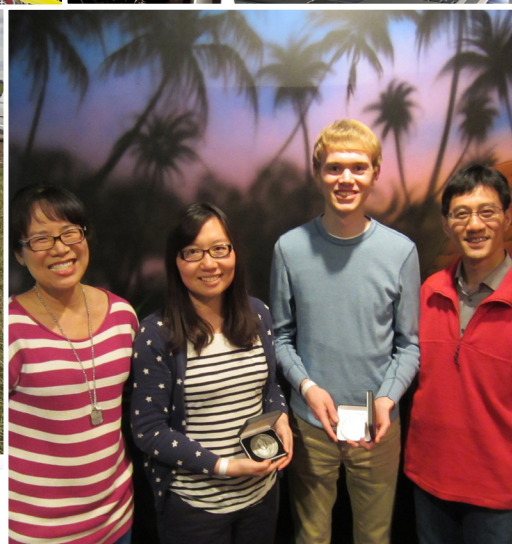


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Introducing Silencio – A Community-powered Network for Hyper-local Noise Pollution Data

By Hasan Hassoun, Theo Messerer, Thomas Messerer

According to the World Economic Forum, 68% of the global population will live in cities by 2050 [1]. This increase in dwellings and movement will generate safety, health, access, and mobility challenges for those cities. The flow-on effect of this will be noise and the impact of that on the current but also future communities. The European Environmental Agency has noted that “noise ranks together with air pollution as the environmental exposures most harmful to public health” [2]. The key to driving effective change in environmental noise pollution is to clearly define the problem and then identify appropriate control strategies and actions.

The European Union considers Environmental Noise as one of the headline targets of the zero pollution action plan, targeting a reduction of 30% by 2030 in comparison to 2017 [3]. The European Noise Directive (Directive 2002/49/EC) requires EU countries to prepare and publish noise maps and management action plans. The issue with this lies in the accumulation of data. Most countries develop Noise maps based on samples of a fraction of the city scaled to the size of the entire region. This data is not necessarily an accurate depiction of the Noise Pollution in a city and can lead to inefficient mitigation strategies that target areas potentially insignificant. If only there were a better way...



Silencio

Silencio is a community-driven platform focused on addressing the growing problem of noise pollution in urban areas. It has developed a free application that aims to become the largest citizen science project in the world in order to combat noise pollution. The project encourages users to contribute hyper-local noise pollution data by offering rewards in the form of noise coins, which can be used to access various goods, services, and environmental initiatives within the platform.

Leveraging the power of blockchain technology, Silencio enables users worldwide to join a global community contributing to a real-time noise map. This is achieved by transforming their smartphones into anonymous noise monitoring devices, recording decibel measurements to paint a detailed, global picture of noise levels. By using Silencio, users have the opportunity to create a passive income while also improving the quality of life for themselves and others. Utilizing an innovative tokenomics model, Silencio aims to create a sustainable and engaging ecosystem, where users actively participate in combating noise pollution while benefiting from their contributions. By gathering accurate, real-time data, Silencio seeks to enable data-driven decision-making for governments, city planners, and industries, leading to more effective noise control strategies and improved quality of life for urban residents.

Key aspects of the Silencio project include a user-friendly app, partnerships with businesses and organizations, and a long-term vision for global expansion and comprehensive noise pollution management. By successfully addressing these elements, Silencio aspires to become a leading force in the fight against noise pollution and promote healthier, more sustainable urban living.

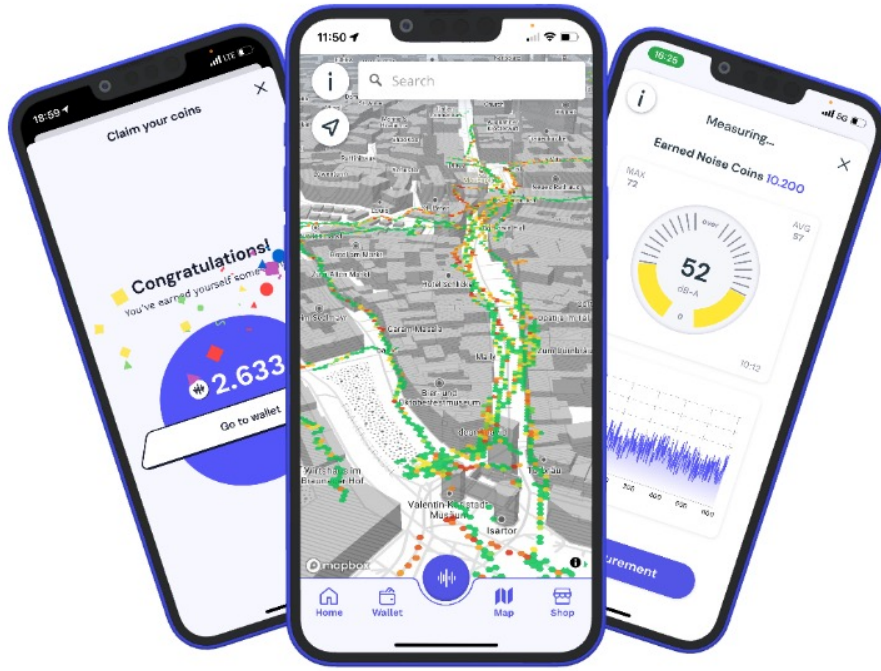
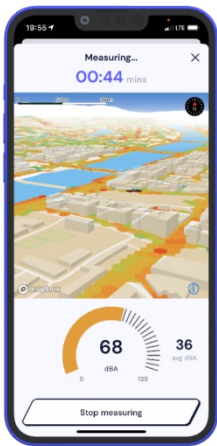


Figure 1: Before we can solve a problem we must first understand it. The Silencio App will enable the collection of hyper-local noise measurement data



Where are we now?

Launched in February 2023, Silencio has swiftly emerged as a pioneering force in addressing noise pollution, gaining over 33,000 users and amassing over 350 million data points in just a few short months. Exemplifying the capabilities of Web3, Silencio utilizes blockchain technology to guarantee transparency, security, and equitable value distribution. The result is a system that users can trust while reaping rewards from their contributions. With over 350 million data points, Silencio's platform is ripe with potential use cases. City planners can use the data to design quieter urban spaces, researchers can examine the impacts of noise pollution more effectively, and real estate platforms can provide noise level information as a key part of their offerings.

Want to learn more:

Silencio is a testament to how technology can be harnessed innovatively to tackle pressing global issues. By transforming smartphones into a worldwide network of noise monitors, it's voicing the need for quieter cities, healthier lives, and a more harmonious world. With sufficient data, Silencio hopes to make a significant impact in the fight against noise pollution and improve the quality of life of millions of people across the globe.

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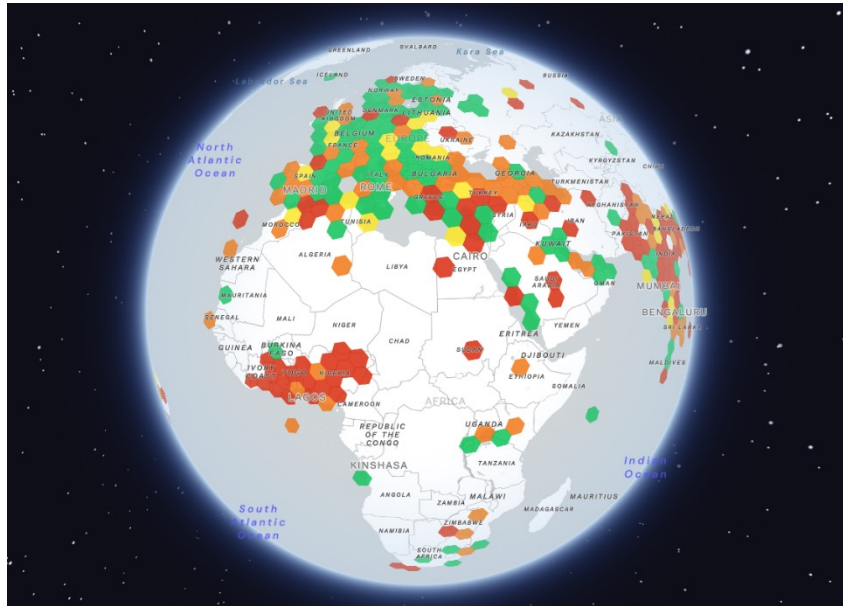


Figure 2: Silencio's current Global Noise Measurement Map



Figure 3: Users can contribute hyper-local noise pollution data

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Looking Forward to INTER-NOISE 2023



INTER-NOISE 2023 is just around the corner. Under the theme of “Quieter Society with Diversity and Inclusion”, the world’s foremost congress on noise control will meet in Chiba, Japan in August. The Congress is sponsored by the International Institute of Noise Control Engineering (I-INCE) and co-organized by the Institute of Noise Control Engineering of Japan (INCE/J) and the Acoustical Society of Japan (ASJ).

Japan has organized the Inter-Noise congress on three occasions in the past: Sendai in 1975, Yokohama in 1994, and recently Osaka in 2011. Each congress was a great success.

What to Expect...

INTER-NOISE 2023 will primarily be a live/in-person congress but will also enable pre-recorded presentations for the participants who cannot travel to Japan. This congress will offer the best opportunities to learn about and share cutting-edge research with colleagues from all over the world. The congress promises to be an invaluable experience for all participants and a great opportunity to create friendships and new memories

Program in Brief

In the technical program, a special area entitled “Theme-related & Novel Approaches” is provided, which includes three interdisciplinary sessions: “Inclusive Design of Sound Environment,” “Diversity of Local Noise Issues in the World” and “Noise Control during/after the Pandemic Era.”

- August 20 (Sunday): Opening ceremony & Plenary lecture 1, Opening reception
- August 21 (Monday): Technical sessions, Poster & Exhibition, Keynote lectures 1 & 2
- August 22 (Tuesday): Technical sessions, Poster & Exhibition, Keynote lectures 3 & 4, Congress banquet
- August 23 (Wednesday): Technical sessions, Poster & Exhibition, Closing ceremony & Plenary lectures 2, Closing reception

Distinguished Lectures

The congress will host the following distinguished speakers who will be presenting Plenary and Keynote Lectures. These on-site distinguished lectures will be live-streamed on the online congress platform.

- Dr. Hiroshi Sato: “Sound in Life and Acoustics for Society”
- Dr. Judith L. Rochat: “Committing to Full-Spectrum Noise Equity”
- Dr. Joseph M. Cuschieri: “Underwater Acoustics and Marine Systems”
- Dr. Danielle Moreau: “Exploring Real-World Geometry Effects on Airfoil and Bluff-Body Flow Noise”
- Dr. Judicaël Picaut: “The Short Story of Urban Acoustics”
- Dr. Bianca I. Schuchardt: “Challenges and Opportunities of Urban Air Mobility – How Much Noise is Acceptable?”

Young Professionals

Young professionals are students and also people who are early in their careers (a few years after graduation). Plans for Young Professional at Inter-Noise 2023 include the following:

- Sunday, August 20, 10:00 am-3:30 pm, I-INCE Practice School (Case Studies on Noise Control).
- Monday, August 21, 7:00 am-8:00 am, Students/Young Professionals Breakfast.
- Monday, August 21, 3:00 pm-5:00 pm, I-INCE Young Professionals Workshop.
- Monday, August 21, 5:00 pm-5:30 pm, I-INCE Young Professionals Awards Presentations.
- Monday, August 21, 5:30 pm-6:30 pm, Social Networking Reception (by invitation).

Congress Banquet

The Organizing Committee of INTER-NOISE 2023 is planning Congress Banquet in the Makuhari Messe after the technical sessions on August 22, 2023. Participants will be able to enjoy the atmosphere of the traditional Japanese Summer Festival with street foods and festival dance etc.

Getting To Japan and Getting Around

Getting to Japan from anywhere in the world is easy, thanks to the many international flights to Tokyo’s two international airports, Haneda and Narita. Chiba boasts of being “Japan’s No.1” in terms of global access provided by these two international airports. They are respectively ranked first and second in Japanese airports in terms of the number of passengers. It takes 30 to 40 minutes by express buses from these two international airports to Makuhari, Chiba which is a congress venue. In the Greater Tokyo area, public transportation such as the railway is well developed, and several railway lines are operating directly between Makuhari and central Tokyo with travel time within 30 minutes. You can find the beloved attractions of Tokyo at your fingertips. More information about Chiba and Makuhari is available at <https://www.visitchiba.jp/> and <https://www.visitchiba.jp/things/makuhari/>.

We look forward to seeing you in Japan!

For more information: <https://internoise2023.org/>



More Than 1200 Attend INTER-NOISE 94



INTER-NOISE 94 is opened by a group of Japanese junior high-school and high-school students.

INTER-NOISE 94, the 1994 International Congress on Noise Control Engineering was the largest INTER-NOISE Congress in recent history, and one with an outstanding technical program. In accordance with the theme, *Noise - Quantity and Quality*, attention was paid not only to the level of noise, but those other attributes which affect listener's reactions, broadly defined as *sound quality*.

INTER-NOISE 94 opened with some music by a very talented group of eight junior high-school and high-school students from the Setagaya Gakuen

School who played *Maria Isabella* by Berrio and *Carnaval* by Schumann.

Professor Toshio Sone, the General Chairman of INTER-NOISE 94, then welcomed the INTER-NOISE 94 delegates to Yokohama. He said that the delegates who attended the last INTER-NOISE Congress in Japan, INTER-NOISE 75, will have a chance to learn of the administrative and technological improvements in environmental

noise control in Japan during the last nineteen years.

"This Congress," he said, "was made possible due to the support of the Environmental Agency, the local administrative agencies of the cities of Yokohama and Kawasaki, the Commemorative Association for the Japan World Exposition, a number of industrial establishments, and, of course, the International Institute of Noise Control Engineering." He extended his gratitude to all of these institutions prior to the Congress.

The Congress President, Dr. Masaru Koyasu, welcomed the delegates to the meeting by saying that while there are a large number of noise problems still to be solved through the physical reduction of noise, one of the important subjects in noise control engineering must also be the creation of a comfortable sound environment. "Professor Namba of Osaka University in Japan," he said, "will discuss this subject as the keynote speaker later in this plenary session." Dr. Koyasu also said that one special feature at INTER-NOISE 94 will be the session on Instrumentation and Software, a special session of 30 papers presented by the exhibitors at the Congress. "It is worth mentioning," he said, "that the Organizing Committee is composed of about 100 members, including several subcommittees." He said that all of the members have worked very hard to ensure that the Congress runs smoothly, and is a success. "I sincerely hope," he said, "that all overseas participants enjoy their stay in Japan, not only through



Professor Toshio Sone, General Chairman of INTER-NOISE 94 greets delegates as the Chairman of the opening Plenary session.



Dr. Masaru Koyasu, President of the Congress welcomes delegates to INTER-NOISE 94.

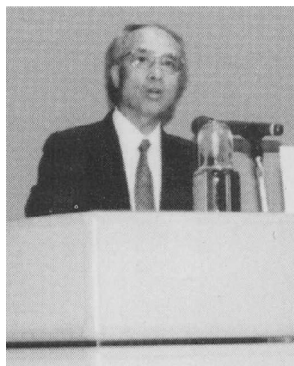
acquaintance with noise control technology, but also through close contact with Japanese cultures."

Professor Sone then introduced Dr. Oosawa, Director of the Air Quality Bureau of the Environment Agency of Japan. He gave a brief summary of the importance of noise control in Japan, and the activities of government agencies in Japan. *(Dr. Oosawa's address appears in the INCE Update department of this issue. — Ed.)*

Professor Sone then introduced the President of International INCE, Dr. William W. Lang who described some of the activities of International INCE. He announced that ACTIVE 95, the symposium to be held prior to INTER-NOISE 95, has been designated by the I-INCE Board of Directors as an International INCE Symposium, and that the Board of Directors has accepted an invitation from Hungary to organize the 1997 INTER-NOISE Congress in Budapest. *(The text of his remarks appears in the INCE Update department of this issue — Ed.)*

Professor Seiichiro Namba of Osaka University in Osaka, Japan gave the first distinguished lecture at INTER-NOISE 94. The title of his paper, *Noise, Quantity and Quality*, addressed the theme of the Congress. He began his Distinguished Lecture by redefining the quality of sound known as timbre. He suggested that the conventional definition, the "attribute of auditory sensation in terms of which a listener can judge that two sounds similarly presented and having the same loudness and pitch are dissimilar." He suggested that "timbre" should be employed to cover two attributes, 1) a characteristic which gives a clue to the identity of the sound source, and 2) the quality of a sound which corresponds to the affective impression which can be verbally expressed as timbre. These attributes, he suggested, should be called *sound quality* in noise research. He said that the main theme of his presentation is that sounds equal in loudness but different in timbre may have different effects on listeners.

He described several studies of the cross-cultural influences on the perception of different sounds, and concluded that the perception of many sounds is different in different countries. He warned of creating artificial "soundscapes" because these environments - created with the help of loudspeakers - are accepted differently in



Dr. Susumu Oosawa of the Environmental Agency of Japan presents an overview of noise problems in Japan

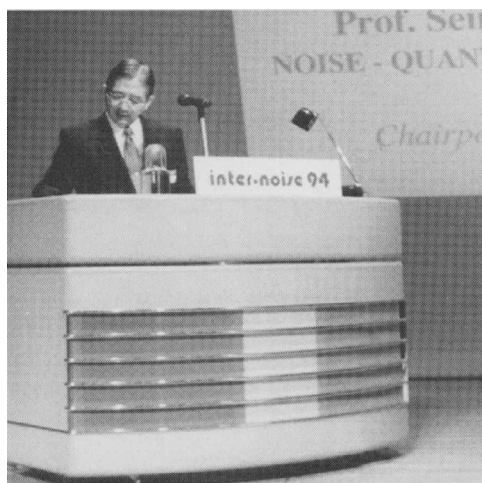


Dr. William W. Lang, President of International INCE, reviews International INCE progress since the last congress in Leuven, Belgium.

different countries. He pointed out that changing life-styles affect the perception of sounds; for example, listeners become much more critical about environmental quality when a certain degree of economic security has been achieved.

He gave several examples of remarkable reductions in noise levels achieved by progress in noise control engineering, but warned that reductions in noise level may in some cases not improve the quality of the sound, as, for example when the reduction of broadband sound eliminates masking from rumble or gear noise.

He then turned to a psychophysical approach to noise quality and suggested that noise quality can be expressed by a relatively small number of factors. He described research in terms of semantic profiles



Professor Seiichiro Namba presents the keynote address at the Congress.



Professor Hideki Tachibana, Chairman of the Technical Program, introduces the second INTER-NOISE 94 Distinguished Lecture.



Professor André Cops presents the second Distinguished Lecture at the Congress.



Professor Sonoko Kuwano, Editor of the INTER-NOISE 94 Congress Proceedings, introduces the third Distinguished Lecture to be held at INTER-NOISE 94.

such as sharp...dull, weak...powerful, pleasing...unpleasing, etc., and gave several examples of how these profiles could be used to identify the quality of sound from several kinds of machines.

Following the plenary session, delegates broke into ten parallel sessions on a wide variety of topics. Two special presentations were the progress reports on the I-INCE working parties, a report on "Upper Limits on Noise in the Workplace" by Dr. Tony F.W. Embleton, and "Noise Emissions of Road Vehicles - Effects of Regulations" presented by Dr. Ulf Sandberg. The former has now been completed as a draft International INCE Report, and appears as a feature article in this issue. A reception for all delegates was held in the Pacifico Congress center on Monday evening.

The second distinguished lecture was presented by Professor André Cops of the Catholic University in Leuven Belgium, on Tuesday, August 30. Professor Cops serves as the Secretary-General of International INCE and as the European Editor of this magazine.

Professor Cops gave an excellent review of the *Progress in Building Acoustics* over the past several years. "The sound quality of indoor environments," he said, "is, of course, very important, and an understanding of building acoustics is the key to controlling these environments."

He pointed out that the advances in digital signal processing have made it possible to make accurate measurements of quantities other than sound pressure, and he gave several examples of techniques

which may be used to study all of the details of sound radiation from complex building structures. "Acoustic intensity and acoustic holography are two most useful tools," he said, and he proceeded to give several examples of the use of these tools for sound transmission measurements, determination of sound transmission loss, and for examination of sound transmission through structures such as walls with windows. He reviewed techniques of acoustic holography and phonoscopy, and how these techniques can be used to understand the properties of complex sound fields.

He also reviewed the rapidly-developing field of active noise control in building acoustics, and gave examples of how loudspeakers mounted inside the cavity of a double-walled partition or inertial shak-

ers mounted on double-wall panels can provide low-frequency noise reduction.

He then turned to numerical modeling, and gave examples of how Statistical Energy Analysis, Finite Element Methods, and Boundary Element Methods can be used in building acoustics.

He concluded by saying that these new measurement techniques and the availability of advanced modeling techniques have helped engineers to find cost-effective means to reduce building noise.

Ten parallel sessions then followed the plenary, and continued throughout the day. In the evening, a banquet and cruise on Yokohama Bay was offered, and was very well attended.

Regulations for Community Noise was the topic of the third distinguished lecture presented on Wednesday, August 31 by Dr. Dieter Gottlob of the Federal Environmental Agency in Germany. "Noise in many industrialized countries," he said, "has been developing into a severe environmental problem. More than 70 percent of the citizens in Germany are annoyed by traffic noise, 50 percent by aircraft noise, and about 20 percent by industrial noise and rail traffic noise." He estimated that the annual costs accruing from noise in Germany amount to about 26-28 billion Deutsche Marks!

He gave an excellent overview of worldwide noise regulations relative to industrial noise, road traffic noise, rail traffic noise, and aircraft noise. Using a carefully-developed series of charts, he contrasted the allowable noise limits for noise from industrial plants in fifteen different countries, and

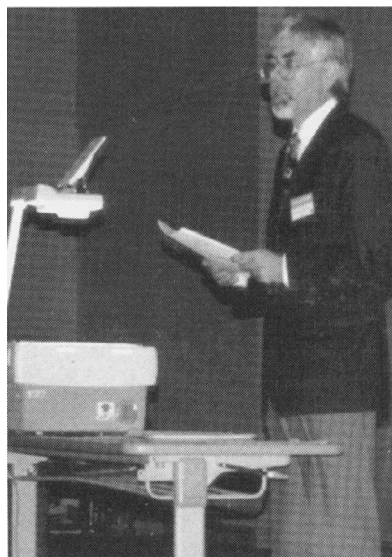
explained the different descriptors used, the required levels, and the effect of time of day and night on the required levels. He included corrections for both tonal components and impulsiveness in his analysis.

He proceeded with a similar analysis of road traffic noise regulations in fourteen countries, and listed the conditions under which the regulations apply. He continued with an explanation of railroad noise regulations in twelve countries.

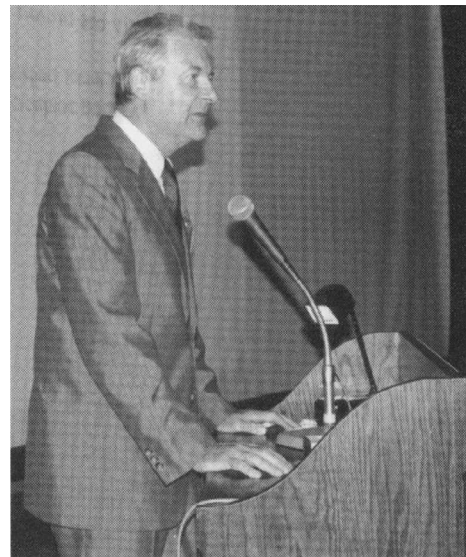
He next turned to aircraft noise, and summarized the regulations in twelve countries. He presented approximate equations for describing the 24-hour equivalent A-weighted sound level in terms of the descriptors used in each country.

The fourteen page summary of his presentation in the Congress Proceedings is a carefully-referenced article which should be useful to engineers, regulators, and environmentalists who wish to compare noise regulations in their own country with those around the world.

As on previous days, ten parallel sessions were held for the rest of the day. The Congress closed on Wednesday, August 31. Following a performance of



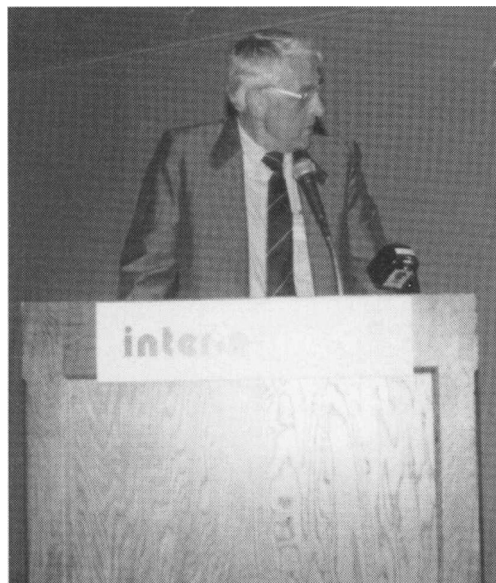
Dr. Dieter Gottlob presents information on worldwide community noise regulations as the third Distinguished Lecturer at INTER-NOISE 94.



Professor Jiri Tichy, General Chairman of ACTIVE 95, invites delegates to next year's International INCE Symposium.

the first movement of the *Italian Concerto* by J.S. Bach, Dr. Masaru Koyasu began the closing ceremony by introducing the General Secretary of International INCE, Professor André Cops, who gave thanks to the INTER-NOISE 94 Secretariat for an outstanding job managing the congress. He thanked Professor Yôiti Suzuki from Tokohu University for his leadership of the Congress Secretariat and Dr. Ozawa, Dr. Asano, Uematsu-san, Abe-san and Harry-san for their contributions to the Congress. Flowers were presented to two coordinators for the Congress, Tsuzuku-san and Iimura-san, and to the secretary of the General Chairman, Yashiro-san. William W. Lang, President of International INCE, gave thanks to the entire organizing committee for INTER-NOISE 94, and a bouquet of flowers to Professor Kuwano in gratitude for her outstanding work as editor of the INTER-NOISE 94 Proceedings. Dr. Lang thanked all of the organizers again. "I don't know any Japanese," he said, "but *Gokurôsama deshita*, thank you for a job very well done."

Attention then turned to the 1995 meetings sponsored by International INCE. Professors Tichy and Tachibana presented an overview of the ACTIVE 95 Symposium on active control of sound and vibration which will precede the INTER-NOISE Congress, and Alan H. Marsh invited all attendees at INTER-NOISE 94 to come to Newport Beach, California, USA next July for the INTER-NOISE 95 Congress. He showed a series slides of the venue for the Congress and views of Newport Beach.



Alan Marsh, General Chairman of INTER-NOISE 95, invites delegates to attend the 1995 meeting in Newport Beach, California, USA.

After a second musical interlude, the 3rd movement of the *Italian Concerto*, Professor Yōiti Suzuki invited all attendees to have a farewell drink before leaving Yokohama. "The drinks are being sponsored by the organizers of INTER-NOISE 95," he said, "so the wine is Inglenook, and the beer is Budweiser."

The attendance at INTER-NOISE 94 was 899 registrants from 36 countries, including 28 students. There were 222 exhibitor personnel from 44 companies, 89 accompanying persons, and 17 guests, making a total of 1227 in attendance for the three-day congress.

The three-volume set of proceedings contains 498 technical papers, including the text of three distinguished lectures. There were 555 Japanese registrants at the congress. The largest overseas delegation was from Korea with 49 participants. The United States, Germany, France, Australia, Sweden, United Kingdom, Italy, Denmark, China, Canada, and Russia followed with 48, 34, 30, 23, 22, 20, 19, 16, 13, 12, and 11 respectively.

The three-volume set of congress proceedings is available for immediate shipment from Noise Control Foundation, P.O. Box 2469 Arlington Branch, Poughkeepsie, NY 12603. The postpaid price is USD 180. Overseas orders to be shipped by air mail should add USD 50 for airmail postage and handling. Customers in Japan may wish to order directly from INCE/Japan or the Acoustical Society of Japan. In Japan, the price is JPY 15,000, including surface mail postage. Contact INCE/Japan, c/o Kobayasi Institute of Physical Research, 3-20-41 Higashimotomachi, Kokubunji, Tokyo 185, or the Acoustical Society of Japan, Ikeda Building, 2-7-7 Yoyogi, Shibuya-ku, Tokyo 151.

Technical Sessions at INTER-NOISE 94

Sixty-one technical sessions were held at INTER-NOISE 94. The session titles are listed below with special sessions listed in bold-faced type.

Distinguished Lectures (3)

Progress Reports of I-INCE Working Parties

Railway Noise and Vibration I

Railway Noise and Vibration II

Railway Noise and Vibration III

Aircraft and Airport Noise I

Aircraft and Airport Noise II

Prediction of Road Traffic Noise

Noise Regulations for Road Vehicles

Source Characterization in Duct Systems

Vehicle Noise

Tire/Road Noise

Machinery Noise

Flow Noise

Physical Phenomena

Noise Propagation Outdoors

Barriers

Structure-Borne Sound Sources

Structure-Borne Sound

Vibration Damping and Isolation

Noise Control in the Workplace I

Noise Control in the Workplace II

Inner Ear Function and Noise

Subjective Evaluation of Environmental Noise

Sound Quality of Machinery Noise

Subjective Response to Vibration

Sound Amenity and Soundscape

Personal Noise Exposure

Perception of Noise

Psychological Effects of Noise I

Psychological Effects of Noise II

Community Noise

Active Noise Control - Algorithms I

Active Noise Control - Algorithms II

Active Control - Vibration

Active Control - Sound Fields

Active Control - Applications I

Active Control - Applications II

Floor Impact Sound

New Methods of Measuring Sound Transmission

Sound Absorbing Materials

Sound Insulation I

Sound Insulation II

Duct Acoustics, Silencers and Mufflers

Structural Intensity Measurements I

Structural Intensity Measurements II

Sound Intensity Applications

Sound Power Determination

Noise and Communication

Signal Processing and Diagnosis I

Signal Processing and Diagnosis II

Measuring Techniques I

Measuring Techniques II

Numerical Analysis and Modeling I

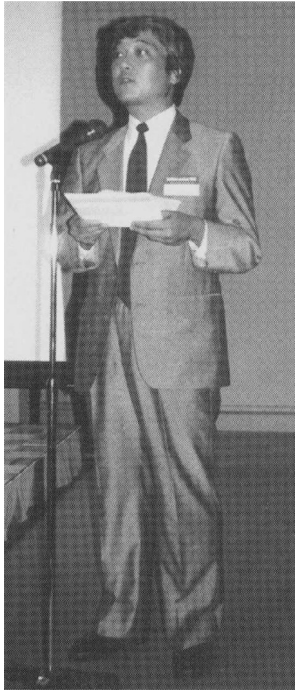
Numerical Analysis and Modeling II

Numerical Analysis and Modeling III

Numerical Analysis and Modeling IV

Noise Regulation, Control, and Cost Analysis

Instrumentation and Software



Professor Yōiti Suzuki, who ran the Congress Secretariat, closed INTER-NOISE 94 by inviting delegates to a farewell drink sponsored by the INTER-NOISE 95 organizers. "The wine," he said, "is Inglenook, and the beer is Budweiser."

NOISE/NOTES

Eoin A. King, NNI Editor

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.

INCE-USA Webinars

INCE-USA regularly hosts webinars on topics related to noise control. Recently in April, INCE-USA members Mike Raley from PAC International and Evelyn Way from Maxxon discussed how to incorporate acoustic and fire design elements for your building design projects. There are many design elements that work well for fire and for acoustics, however, there are also areas where what works well for fire can be at odds with what works well for acoustics. In this presentation, Mike and Evelyn discussed acoustic and fire design elements for basic wall and floor/ceiling assemblies and for design details like penetrations and assembly intersections. It is available to view on the INCE-USA website: <https://www.inceusa.org/careers-education/ince-webinars/>

Noise could take years off your life (NY Times)

The New York Times recently explored the health consequences of noise in its landmark project Noise Could Take Years Off Your Life. It is an excellent exploration of noise, and its impact on human health, including sound measurements from various locations around the US, as well as illustrating the biological effects of noise, how it effects the endocrine system, the sympathetic nervous system, and ultimately how it may lead to heart disease, heat attacks and stroke. [Learn More](#)

No suitcases allowed!

The Mayor of Dubrovnik, Croatia, has introduced new rules which have effectively banned tourists from carrying wheeled suitcases on the streets. Tourists not complying with the ban could be fined \$288. As reported by www.wionews.com, people living in the city have long complained of noise that wheeled suitcases make when dragged across stone-paved pathways, with residents complaining the noise keeps them from sleeping almost every night. [Learn More](#)

Watch: Aviation Noise, Pollution and Health - Quiet Coalition Webinar

At a recent meeting of the DC Metroplex BWI Community Roundtable (RT), BWI RT member Jesse Chancellor screened

excerpts from the June 2022 Quest for Quiet conference Aviation Noise, Pollution and Health: Connecting the Dots. This was to emphasize the serious harms, like cardiovascular disease, that result from repetitive high-volume aviation traffic. Quiet Communities is a nonprofit organization that is dedicated to helping communities reduce health and environmental harm from noise and pollution. It operates through five programs: Quiet American Skies, Quiet Landcare (formerly Quiet Outdoors), Quiet Coalition, Quiet Healthcare, and Quiet Empowerment (formerly Quiet Conversation). For more information see: <https://quietcommunities.org/>

Pickleball Backlash

The Guardian (UK), reports that pickleball - the fastest-growing sport in the US and has become popular in the UK - has been subjected to recent criticism with reports that it is loud, dangerous, and encroaches on much-loved tennis courts. The source of the noise is mainly coming from the ball... "when the rigid plastic paddle strikes the hard plastic ball, it produces a sharp popping sound. Multiply it by thousands of hits across thousands of brand new pickleball courts, all day and far into the night, and you end up with a lot of disgruntled local residents". It appears that there may be a real problem with pickleball noise, as it's also been reported on in the New York Times. The most recent NYTimes article states that "the incessant pop-pop-pop of the fast-growing sport has brought on a nationwide scourge of unneighborly clashes, petitions, calls to the police and lawsuits, with no solution in sight"! [Learn More](#)

No more Fireworks

Fourth of July celebrations in the United States are usually accompanied by a fireworks display. However several cities are now replacing their fireworks for drones. Business Insider reports that some US cities in states like California and Colorado have replaced fireworks with drone shows to reduce wildfires and noise pollution. [Learn More](#)

International Representatives

Below is a list of international contacts for the advertisers in this issue. The telephone number is followed by the fax number where available. In cases where there are two or more telephone numbers per location, or several locations within a country, a semicolon (;) separates the telephone number(s) from the respective fax number. Advertisers are asked to send updated information by email to jlessard@virtualinc.com.

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