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## Audio Engineering Society Chicago Section Meeting

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**Tuesday, December 9, 2008, 7:30pm**

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### **Piano Tone, Tuning and Inharmonicity Presented by Dave Carpenter**

**Location: Shure Incorporated, 5800 W Touhy Ave, Niles, IL 60714**

**Directions to Shure:**

When arriving by car, approach from the east by heading west on Touhy, then turn right into the parking lot just east of the Shure building, which is on the corner of Touhy and Lehigh. Enter at the employee entrance on the east side of the building and register at the guard desk. A valid driver's license must be presented at the guard desk when registering.

[http://maps.google.com/maps?f=q&hl=en&geocode=&q=5800+W+Touhy+Ave,+Niles,+IL+60714+\(Shure+Incorporated\)](http://maps.google.com/maps?f=q&hl=en&geocode=&q=5800+W+Touhy+Ave,+Niles,+IL+60714+(Shure+Incorporated))

Dinner (optional) will begin at 6:30pm. Reservations required, contact Treasurer Mike Lester at [lester\\_michael@shure.com](mailto:lester_michael@shure.com) by Wednesday December 8th. Pizza will be provided. Price is \$10 for non-members and \$8 for members and students.

**About the Presentation:**

The art of piano tuning is a mystery to most, often conjuring visions of an odd character wielding a tuning fork and pounding the same key over and over again. Despite a tradition of obscurity and hand-me-down skills, the last 25 years has brought much new understanding to piano acoustics and tuning. The modern piano technician makes use of coincident partials for amazing accuracy, and advanced electronic tuning devices acoustically measure a piano's inharmonicity to resolve octave stretch. Dave Carpenter will take us on a tour of both the theoretical and practical aspects of piano acoustics and tuning, from the mathematics of temperaments and physics of inharmonic vibration to the tools and techniques of piano service. Bring your critical ears for audio demonstrations that will challenge your sense of "in tune", and all your questions about piano acoustics and maintaining home, studio and concert pianos.

**About the Presenter:**

With a BSE in Computer Engineering from the University of Illinois in 1988, Dave Carpenter launched his career in software development at

Motorola's Cellular Infrastructure Group during the heyday of analog cellular. After 11 years of software positions, Dave turned to his newfound interest in audio, acoustics and signal processing as a founder and principal developer of electronic piano tuning products by Veritune Inc. Following a grant award from the U.S. Department of Education for independent research in auditory displays for the visually impaired, Dave was inspired to further hone his investigative nature, and is currently completing a PhD in acoustics at Penn State. Dave is a Registered Piano Technician, an adjunct faculty member of the Chicago School for Piano Technology, and an independent consultant in digital signal processing and acoustics. Dave presently lives in Elmwood Park, Illinois, and is contracting at Shure Incorporated.

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## **RELATED EVENTS:**

Detroit Section Meeting: *The History and Future of the Recording Studio in Detroit*  
2pm Saturday, December 6<sup>th</sup> at The Disc Ltd., 14611 E. Nine Mile Rd, Eastpointe, MI 48021

Bob Dennis will review his role in the history of the music recording industry in Detroit and their contributions today. Bob will tell how the shift from the influence of the major studios to iTunes has affected the music industry and artist development in Detroit. A tour of the facility will be lead by Greg Reilly. Bob Dennis was mastering engineer at Motown and HDH, cutting all their hit records before founding "Superdisc" over thirty years ago. At "Superdisc" Bob continued to offer disc mastering on a state of the art half speed Neumann lathe through the 1980s. The "Superdisc" name was shortened to the slang everyone called it, "The Disc". Today Bob teaches and develops courses for "The Recording Institute of Detroit", a trade school for recording skills at the same location as the studio.

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## Chicago AES Section **Meeting Report** **November 20th, 2008**

Representing the FirstSounds team, Patrick Feaster presented the Quest for the World's Oldest Recording at the Chicago section's November meeting. The FirstSounds team has pioneered the recovery of sound from phonautograms, many of which were recorded before Edison invented the phonogram in 1877. Patrick began by giving a brief history of recording and reproducing sound and speech. Relevant newspaper clippings, advertisements and patents were used to set the stage for Leon Scott's patent application for the phonautograph (1857). The phonautograph consists of a membrane that transfers acoustical vibrations to a needle which then inscribes the oscillations on a rotation sheet of paper. Patrick explained the exciting hunt for a readable copy of one of these recordings. Leon Scott's original patent application was eventually tracked down yielding a very promising set of recordings. These traces were converted to digital audio signals using the IRENE system (used to optically read records). A major improvement to the quality of the playbacks occurred when a second "channel" was discovered adjacent to the main waveform. This secondary waveform was created by a tuning fork of known pitch which allowed the FirstSounds team to correct for the unsteady time-stretching that was a result of the phonautograph being hand cranked. Throughout the presentation Patrick played various stages of the 1860 recording "Au Clair de la Lune – French folk song" that was recovered from Scott's

patent application. These listening demonstrations showed how each new discovery in their search yielded an ever improving recording. Gorge Gouraud's recording in 1888 previously held the record for the world's oldest recording, which was beaten by the FirstSounds team by 28 years! Patrick finished the presentation by showing the progression of Leon Scott's phonograph design and discussed some of the technical difficulties with converting the waveform traces to digital audio.

The discussion ended with a jump to the present day, explaining how Leon Scott's great-great-grandson is campaigning to give credit to his grandfather's discovery, a fact which has been largely ignored in the shadow of Thomas Edison's celebrity at the time. The Chicago chapter would like to thank Patrick for a wonderful and entertaining presentation. For more information please visit [www.FirstSounds.org](http://www.FirstSounds.org)

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Do you have a job opportunity you would like to publicize? Contact Section Secretary Ryan Scott at [chicago.aes@gmail.com](mailto:chicago.aes@gmail.com) for more information.

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Do you have an idea for a meeting location for the Chicago AES Section? The section is currently considering alternate meeting spaces for future meetings. If you would like to suggest a specific location, please contact Section Secretary Ryan Scott at [chicago.aes@gmail.com](mailto:chicago.aes@gmail.com)