

Meetings are free.  
 Guests are welcome.

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Monthly section meeting March 29, 2005:  
**Film: Tom Dowd & the Language of Music**

**At the Aero Theatre, Santa Monica**

It seems a cliché to call recording engineer and producer Tom Dowd a legend, but it is a fitting accolade nonetheless. From Ray Charles's Atlantic sessions to *Layla*, Tom Dowd was a major technical and creative force in the studio. In a gratifying bit of historical accuracy, even the recent blockbuster *Ray* depicted his work with Ray Charles.

*Tom Dowd & the Language of Music* is a documentary about this fascinating man, whose early scientific and mathematical prowess led him to work on the Manhattan Project during his late teens, while his technical and musical interests later led him into the recording studio. The film has been described as "a labor of love" by Miami-based filmmaker Mark Moorman. This film was screened at the 117th AES Convention last October and received a Grammy nomination for Best Long-Form Music Video.

The Aero Theatre welcomes the LA section for this screening. Newly renovated with state-of-the-art sound and projection systems, the historical cinema was built in 1940 originally for employees of Hughes Aircraft. Now a part of the American Cinematheque, the cinema is at 14th St. and Montana Ave. in Santa Monica. There is on-street parking and plenty of restaurants nearby for a pre- or post-show dinner. AES members and guests may attend free of charge.

In addition to the film, there will be a short discussion of the newly renovated audio system in the Aero Theatre, and a presentation of a clip from *Spider-Man 2*, which was nominated for an Academy Award for sound.

**The AES Los Angeles section thanks Palm Pictures, the Dowd Family Trust, and the Aero Theatre/American Cinematheque for making this presentation possible.**

As always, all interested persons are welcome, whether AES members or not. *(Although we always strongly encourage being a member!)*



**MEETING DATE:** Tuesday, March 29, 2005. **PLACE:** The Aero Theatre, 1328 Montana Ave. (at 14th St.), Santa Monica. See map on page 2. **TIME:** 8:00 P.M.

Meeting recap: February 22, 2005

# Keeping Your Hearing

by Bob Lee

Hearing, of course, is the universally critical sense for us audio engineers, which is why we invited Rachel Cruz of the House Ear Institute (HEI) to give a presentation at our February 22 meeting.

The meeting started off with a drawing for two door prizes graciously donated by Wes Dooley of Audio Engineering Associates. Each was a plastic carrying case, suitable for microphones, containing an AEA t-shirt and some smaller miscellaneous swag.

The evening's presenter, Rachel Cruz, is a research audiologist at HEI and also has a background in music and audio engineering. Her presentation illustrated the structures and mechanisms in the outer, middle, and inner human ear, along with basic descriptions of how they work and how they can be damaged. Since hearing damage is a common occupational hazard with musicians and audio engineers, she followed that up with some tips and advice about using in-ear monitors to help reduce musicians' exposure to loud sounds.

As a physiological process, human hearing is remarkable in that it covers a spectral range of some ten octaves and allows very good localization of sound sources about the horizontal plane. The external structure of the outer ear, the pinna, collects sound and focuses it into the ear canal, and also helps directional detection by emphasizing sounds from the front.

The ear canal directs sound waves to the tympanum, or eardrum, which is analogous to the diaphragm of a microphone. The length of the canal causes a boost in response in the upper midrange. The deeper part of the ear canal secretes a protective wax substance, but the canal also has natural mechanisms for clearing out excess wax.

In the middle ear, vibrations of the eardrum in turn move the ossicles, the smallest bones in the body. These three bones—the malleus (hammer), incus (anvil), and stapes (stirrup)—act as a sequence of levers to

excite the oval window of the spiral-shaped cochlea.

In the inner ear, the vibrations set up in the cochlear fluid, the endolymph, excite the hair cells throughout the spiral. Hair cells respond to specific frequencies, according to where in the cochlea they lie. Other vestibular hair cells serve to compress the dynamic range, allowing us

to hear sounds with a 100 dB+ range of intensities. Loud noise sets up stronger fluid vibrations that may cause hair cells to die off, causing hearing loss.

The information detected by the ear is both spectral and temporal. Part of Rachel's presentation included demonstrations of what varying degrees and types of hearing loss sound like. She also demonstrated what hearing loss patients with cochlear implants experience sonically.

The HEI has conducted hearing tests at a number of audio trade shows, such as AES, NAMM, and NSCA, and has compiled data from these tests. Rachel shared with us some of the data trends and analyses, with subjects grouped by age, sex, and occupation. Interestingly, audio engineers tended to show the least amount of hearing loss, while musicians tended to exhibit the most.

For musicians, in-ear monitors are a good solution for reducing exposure to noise during live performances, but there are variations in how much isolation different types of monitors provide. Good ones will require an audiologist for proper fitting.



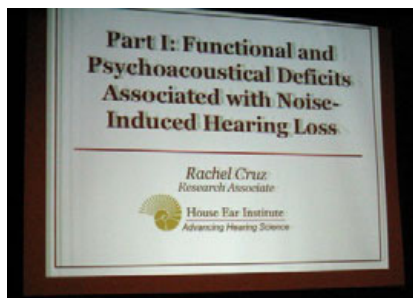
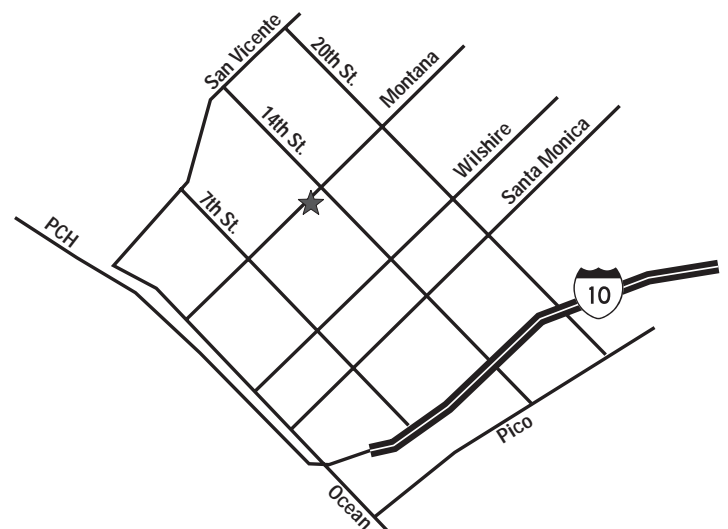
*The Los Angeles section would like to thank Rachel Cruz for her important and informative presentation, and Bob Lee for arranging the meeting.*



Photos by Mel Lambert/content-creators.com

## Map to Aero Theatre

1328 Montana Ave., Santa Monica



# The AES-LA Job Board *A free service of the Los Angeles section of the AES*

## **Audio DSP Engineer** Dolby Laboratories, San Francisco

Please submit resumes to: [czw @ dolby.com](mailto:czw@dolby.com)

Serves as direct liaison with manufacturers of integrated circuits or developers of software libraries that implement Dolby licensed technologies. Supports licensees, produces accurate implementation evaluation reports, and contributes to implementation licensing documents.

### **Essential Job Functions:**

- Interacts with licensees and license applicants regarding technical, quality, contractual, financial, and public relations issues related to technology licensing via written correspondence, telephone conferences, and face-to-face meetings at locations throughout the world.
- Develops and improves tests, procedures, and specifications related to new and established technologies.
- Produces complete and accurate implementation evaluation reports as required to verify performance of implementations and promote and maintain the quality and value associated with Dolby trademarks.
- Provides support to implementation licensees and license applicants as needed to conduct the business of technology licensing using a diplomatic, professional and service-oriented approach. Maintains records of licensee communications in the corporate electronic information system.

### **Requirements:**

- BSEE or equivalent and one to three years of experience in testing, designing, and/or manufacturing high-tech of audio and video products is desirable.
- Exposure to Digital Signal Processing and at least two of the following areas: software development, technology licensing, analog and digital circuitry, PC architecture, audio/video computer design, broadcast technologies, or consumer electronic product testing.
- Knowledge of Psychoacoustics and IEEE1394, SPDIF, USB interfaces, a huge plus.
- Project management skills and knowledge are desirable along with an appreciation for the importance of continuous process improvement required.
- Interest in audio or music desirable.

Dolby offers a comprehensive benefits package including medical, dental, vision, a matching 401(k) plan, tuition reimbursement, every other Friday off and more. We are located in San Francisco (South of Market area) and offer shuttle services for our employees to public transportation (BART & Cal Train).

## **Audio Power Electronics Design Engineer** Extron

Electronics, Anaheim

Join a highly technical staff in the A/V industry to create power electronics for audio systems.

Position will involve low power (<50W) AC-DC converter, DC-DC converter, and Class D amplifier design and support engineering.

**Qualifications:** Experience with switching power conversion as applied to low power AC-DC, DC-DC and Class D amplifiers. Some knowledge of magnetics design. Audio Precision experience. Schematic and PCB layout skills with specific knowledge of switching power constraints.

BSEE or equivalent experience

### **Contact Info:**

Extron Electronics  
1230 South Lewis St.  
Anaheim CA 92805

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[www.extron.com](http://www.extron.com)  
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## **Audio Power Electronics Technician** Extron Electronics,

Anaheim

Join a highly technical staff in the A/V industry to create power electronics for audio systems.

Position will involve low power (<50W) AC-DC converter, DC-DC converter, and Class D amplifier support.

**Qualifications:** Experience with switching power conversion as applied to low power AC-DC, DC-DC and Class D amplifiers. Audio Precision experience.

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Get the latest in AES-LA news and information at <http://www.aes.org/sections/la/>

## **April elections**

Next month we'll hold the annual section elections. If you would be interested in helping arrange the section meeting programs and other events as a member of the section executive committee, please contact the head of the nominating committee, Bill Hogan, at [billhogan1 @ earthlink.net](mailto:billhogan1@earthlink.net), or section chairman Bob Lee at [bob\\_lee @ qscaudio.com](mailto:bob_lee@qscaudio.com) or +1 (714) 327-4667.

## Upcoming AES and AES-LA Events

March 29, 2005	<i>Monthly meeting:</i> Tom Dowd & The Language of Music	Aero Theatre, Santa Monica
March 31–April 1, 2005	<i>20th UK Conference: Convergence:</i> The impact of computers and networking on future audio technology <a href="http://www.aes.org/sections/uk/2005conf/">http://www.aes.org/sections/uk/2005conf/</a>	New Hall, Cambridge, England
April 26, 2005	<i>Monthly meeting:</i> Common-mode noise rejection in audio interconnections; and annual section business meeting and elections	Sportsmen's Lodge, Studio City
May 28–31, 2005	118th AES Convention <a href="http://www.aes.org/events/118/">http://www.aes.org/events/118/</a>	CCIB Congress Centre, Barcelona, Spain
May 31, 2005	<i>Monthly meeting:</i> Topic TBA	Sportsmen's Lodge, Studio City

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With nearly 1,000 members, the Los Angeles section is one of the Audio Engineering Society's largest and most active. Don't miss out on the section's activities; check the web site at <http://www.aes.org/sections/la/>.

You can save money for the section by receiving this newsletter by e-mail instead of regular mail. Send your e-mail address to section secretary Geoff Christopherson, [la\\_section@aes.org](mailto:la_section@aes.org).

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c/o Lori Jackson, Section Administration  
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*Meeting date: March 29, 2005*