



2002-2003 Cal Poly Audio Engineering Society Student Section Newsletter

As another school year comes to an end we wanted to share what we have done this year with all of those who have helped us out. In our first annual newsletter you will find some articles about our most popular and successful events of the year, as well as a listing of all the companies and people that have helped make the events of this year possible. We couldn't have done it without the support of each and every one of them.

-The Club Officers

Loudspeaker Design Contest

In January of 2003 we began the third annual Loudspeaker Design Contest. This event is a quarter long student design competition, in which groups of three or four people work together to assemble a single working loudspeaker. Knowledge of loudspeaker design is not a prerequisite for the competition, and for most participants, this is their first time building any type of speaker. Each group was given an identical Vifa woofer and Peerless tweeter from which to build their loudspeaker, giving every group an equal chance of success. The variations in design came in the form of various enclosure designs the large variety of possible crossover designs. Jeremy Decker, the club president, gave lectures on enclosure and crossover design basics, getting those who had no prior experience up to speed. Students had all quarter to design and build their speaker, and in the second week of the following quarter we conducted a subjective listening test to determine the best speaker. Pairs of speakers were compared in a blind A/B listening test using a variety of music. The speaker that the audience felt sounded best was declared the winner. In addition, we conducted frequency response tests of each loudspeaker using CLIO. This data allowed the participants to both see and hear how well their speaker designs performed. The winning group received copies of BassBox Lite donated by Harris Tech, and the second place group received gift certificates to Boo Boo Records, a local record shop.



With the AES Convention taking place in Los Angeles this year, three of the club officers had the opportunity to take a weekend off from school and see the new products and technologies at this year's convention.



The 2003 Loudspeaker Design Competition winners holding their speaker and prizes.

Musical Allusions and Paradoxes

One of the most popular meetings of the year was our Audio Paradoxes meeting. Those who attended were both amazed and perplexed by seemingly simple audio clips we played. Each of the clips demonstrates how the brain can interpret sounds in such a way that what we think we hear is much different than what is actually playing. Interestingly the various sounds were not all interpreted the same by everyone. The sound clips come from a CD titled Musical Illusions and Paradoxes created by Diana Deutsch. The various musical oddities and variety of different interpretations are what made this meeting so enjoyable. We plan to have a similar meeting in the future, so that more people can hear these audio paradoxes.

Open House

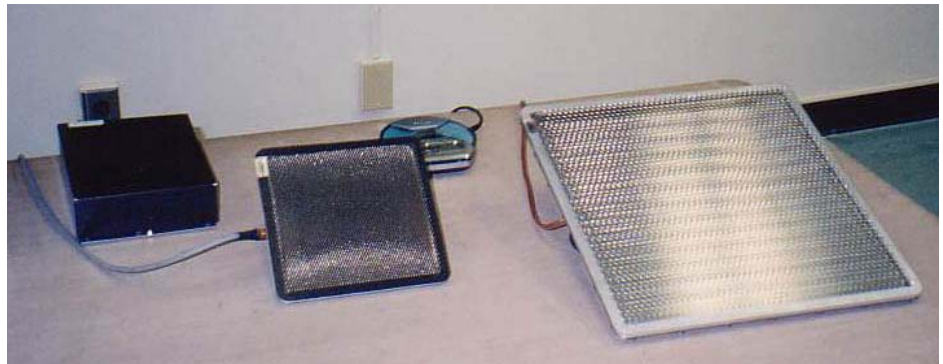
For this year's Cal Poly Open House we once again setup our home theater booth on the Cal Poly campus to demonstrate to attendees the capabilities of a complete home theater. The booth is an acoustically treated and fully enclosed twelve-foot square room that creates an excellent acoustic environment protected from the outside light. While many people have home theaters, very few have the rooms that are even close to ideal acoustically. Keeping with tradition of yearly improvements the booth was better than ever before. This year we obtained Genelec powered speakers loaned to us by Genelec Inc., a Kodak projector loaned to us by Charles M. Salter Associates, Inc, and a Denon DVD player and Sunfire processor loaned to us by Audio Ecstasy to create an impressive movie experience. All day Saturday we demonstrated five to ten minute movie clips to over a hundred people and exposed many more to the activities of our club. In addition we held a raffle of a pair of car sub woofers built by club officers, a pair of bookshelf speakers built by the club president, and a pair of RCA interconnects donated by Audio Ecstasy. Finally, we had the speakers from the loudspeaker design competition, several subwoofers representing most of the various enclosure designs, and other interesting audio gear on display. After the success of this year we will be hard pressed to improve upon it next year



This year's Open House booth inside and out.

HyperSonic Sound

Early in spring quarter, we hosted the inventor Woody Norris, of American Technology Corporation. Woody spoke both about his earlier years as an inventor and about some of the technologies he has invented. The highlight of the evening was his demonstration of HyperSonic Sound, an ultrasonic speaker technology. Standing in the front of the room, Woody swept the flat-panel device slowly across the audience from one side of the room to the other. The audience sat spellbound, as the sound appeared to emanate not from the transducer, but rather from whatever surface it was directed at. More than a few mouths dropped open in sheer astonishment when the speaker was aimed at them directly and the sound seemed to come from within one's own head! After arousing the curiosity and wonder of the audience, Woody went on to explain a little of the underlying physics involved in the demonstration. The speaker generates a 200 kHz inaudible reference signal and another signal that the sound source varies between 200.2 KHz and 220 KHz as necessary. Anyone listening to the speaker, however, hears only the difference between the two signals. This presentation was by far one of the most amazing we have ever had.



Two working HyperSonic Sound transducers.

Special thanks to the following individuals and companies for making the events of this year possible:

Guest Speakers:

Chris Kallai of Velodyne Acoustics
Bill Whitlock of Jensen Transformers
Elwood Norris of American Technology Corporation
Doug Button of JBL Pro

Donors:

Chris Kallai of Velodyne Acoustics
Bill Whitlock of Jensen Transformers
Karen Richardson of Genelec Inc.
Andrew Stanley of Charles M. Salter Associates, Inc.
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Boo Boo Records