

Spring 1993 Newsletter

October 1992 Meeting

Fall Fun with Ferrofluids

At the October 6, 1992 AES Pacific Northwest Section meeting Dr. K. Raj, Chief Scientist and Carol Bousquet, Product Specialist from Ferrofluidics Corporation gave their presentation entitled "Advancements in Audio Grade Ferrofluids." Many audio engineers are interested in the future possibilities of this evolving technology while remembering the reported problems of the past with other materials called ferrofluids. Some of these other products have been known to evaporate thereby causing the voice coil and gap to be gummed up. Let's take a further look into this new ferrofluid technology.

The technology behind ferrofluids, as described by Dr. Raj, is small homogeneous dipole magnets suspended in solution. Homogeneous means that every microscopic magnet is the same size thus keeping the magnets from clumping together and losing their fluid properties.

A few engineering challenges emerge when using ferrofluids. The ferrofluid is



Committee members Dan Mortensen (l) and Tom Stiles (r) try out the magnetic properties of ferrofluid samples in test tubes with a magnet. Each attendee got a free tube of ferrofluid. Photo by Rick Smargiassi

held in the gap by the magnetic field of the speaker magnet. The fluid may wick out of the gap via small holes in the magnet, or the slit in the bobbin that the voice coil is

wound on. Also, since the ferrofluid resides in the gap, it also seals. The gap and the dust cover need to be vented to keep

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December 1992 Meeting

Multimedia Mania at Microsoft

The December 1992 AES Pacific Northwest Section Meeting was held at Microsoft's Redmond Campus, which is 10 miles east of Seattle on the other side of Lake Washington. Microsoft is the company known for its MS-DOS and Windows operating systems along with many other quality software and hardware products. This meeting's subject, "Audio in Multimedia," was presented by Jon Kertzner, Audio Manager and Gordon Currie, Audio Producer at Microsoft.

We are interested in knowing what this new "Multimedia" technology is all about since we have heard so much about it.

Microsoft, in its *Multimedia PC Computing* brochure says that Multimedia PC Computing "integrates animation & photo-quality images with text and graphics."

Multimedia PC Computing can be defined as "pictures with sound that are interactive with the user." The pictures are brought to you by the computer's video monitor. The sound is played through the computer's sound card which drives speakers or headphones. And lastly the system is interactive in that you can select

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Inside

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- A report on the March meeting at Bad Animals recording studio
- New Section Secretary takes over for David Christian
- AES Convention schedule

New Acting Secretary for PNW Section

Longtime PNW Section Secretary David Christian has resigned his position effective immediately. Citing such reasons as increased responsibility with SBE and KPLU duties, he leaves the job he has held since the inception of the PNW Section.

Taking over the duties for the remainder of the term will be committee member Gary Louie. Most requests for Section information, membership requests, mailing list problems, etc. can start with him. His work phone number is 543-1218.

David expects to remain active with the AES, and deserves a hand for his hard work for so many years.

►►► Gripes?

►►► Suggestions?

►►► Ideas?

Got complaints about the Section?
Constructive criticism?
Ideas for meetings?
Contact a Section officer!
(see page 4 for names and phone numbers)

Chairman's Message

For the last few months it has been my pleasure to serve as chairman of the Pacific Northwest Section. As I see it, the major function of such local sections is largely an educational one (to learn of new equipment, technological advances, etc.). The October meeting with Ferrofluidics served this purpose.

But there are other, just as important (if not, for many of us, even more important) reasons for participation in the Society's local events. One is that, with meetings like the tour of Bad Animals Studio, we get to find out what is being done, commercially, around here. Obviously, Bad Animals is a major influence to audio engineering in this area, not just because of the technology involved with establishing and operating perhaps we can get a few ideas to stimulate our own enlightened self-interest!

ating that kind of facility, but also the clientele. Hence, we have a good chance to see What's Going On Where it Really Happens.

Finally, on an even wider scale it is nice to keep up with the industry in general. After all, we have our own selfish interests, which are hard to indulge without a reasonable income. How to guarantee a source of such funding in the field we would like to call ours? Of course, the mechanics of generating that income are up to you. But one thing the Section can do is present meetings such as the Microsoft multimedia demonstration we had in November. I believe we would all agree that this software behemoth has its collective ear to the ground. As much of this new area of development involves audio in a big way

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MultiMedia Mania

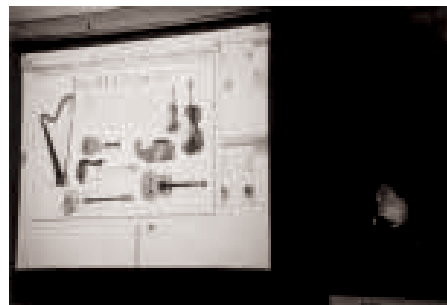
active icons on the computer screen to listen to certain sound bites, or go to another visual detail, or go back to the main menu and explore another area. All of this data, both audio and video, is stored on CD-ROM disks. These CD-ROM disks have the same physical characteristics as an audio CD but store 600 megabytes of computer information instead.

Microsoft has adopted the MPC standard as a platform for their CD-ROM Multimedia Products. MPC stands for Multimedia Personal Computer. Over one million MPC machines are in use today.

The minimum computer requirements for MPC are a 386SX based machine with 2 megabytes of RAM, a 30 megabyte hard disk, a VGA or VGA+ monitor, a CD-ROM drive, an audio board, Microsoft Windows operating system 3.1 or 3.0 with Multimedia Extensions, and a set of speakers or headphones.

Later in the meeting Al Swanson, PNW Section Chairman, demonstrated the four Multimedia products that Microsoft has available - Multimedia Beethoven, Musical Instruments Guide, Cinemania, and Encarta. The Musical Instruments guide was impressive in that the different instruments of the world could be explored without having a warehouse of musical instruments on hand. The educational aspects of this system can already be seen.

Looking at the technical aspects of CD-ROM audio, the digital recording of audio



Microsoft's Jon Kertzer explains Multimedia. Photo by Rick Smargiassi

is compressed 2-to-1 to 5 megabytes per minute at 16 bits. The audio is compressed 2-to-1 to 5 megabytes per minute at 16 bits during the Sound Tools recording process. Sound Tools is a Macintosh based recording system manufactured by Digidesign.

The sound bites that are played back by the Multimedia PC user are stored on the CD-ROM disks as "Red Book Audio," or as a computer wave file. The "Red Book Audio" storage format is same as the audio CD format with the specifications of: 44.1 kHz; 16 bit; stereo only. The computer wave file format can be stored on a CD-ROM disk or a computer disk with the specifications of: 44.1, 22, or 11 kHz; 16 or 8 bit; stereo or mono.

We thank Microsoft for hosting us in their hi-tech meeting rooms. We were also delighted to find out that some of the people at the meeting were involved with recording and editing the sounds for these new CD-ROM Multimedia products. Congratulations to the Pacific Northwest Section for being involved in this new and upcoming technology.

reported by Rick Smargiassi

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Ferrofluids

from losing output power due to the compression of air. If enough power is applied to a speaker that is not properly vented the ferrofluid will be pressurized out of the gap. These problems - wicking and ventilation - need to be addressed when a manufacturer designs a speaker and chooses one of the many ferrofluids which is best for that design.

With these speaker design considerations in mind, ferrofluids do have their

benefits. Ferrofluids conduct heat away from the voice coil to the magnet giving longer speaker life or approximately twice the power handling capability. Some tweeters have been designed without spiders because the ferrofluids can hold the voice coil centered in the gap. Ferrofluids also have a dampening effect that can reduce distortion and improve frequency response.

The only consideration left is whether these ferrofluids will evaporate and gum up the voice coil and gap. Ferrofluidics has been developing materials with low

evaporation rates. The October 1991 AES paper "Ferrofluid as an Acoustical Design Parameter" by K. Raj, J. Bonvouloir, and B. Moskowitz describes these slow evaporation rate properties. According to the paper the ferrofluid will not evaporate enough to cause a noticeable difference in the performance during the life of the speaker under normal operating conditions. Evaporation rates should be kept under consideration when choosing a ferrofluid especially when the voice coil is continuously subjected to high operating temperatures.

Many thanks to Carol Bousquet and Dr. K. Raj for informing us about this new improved ferrofluid technology.

reported by Rick Smargiassi



Host Jim Haviland of Lawson/Bad Animals.

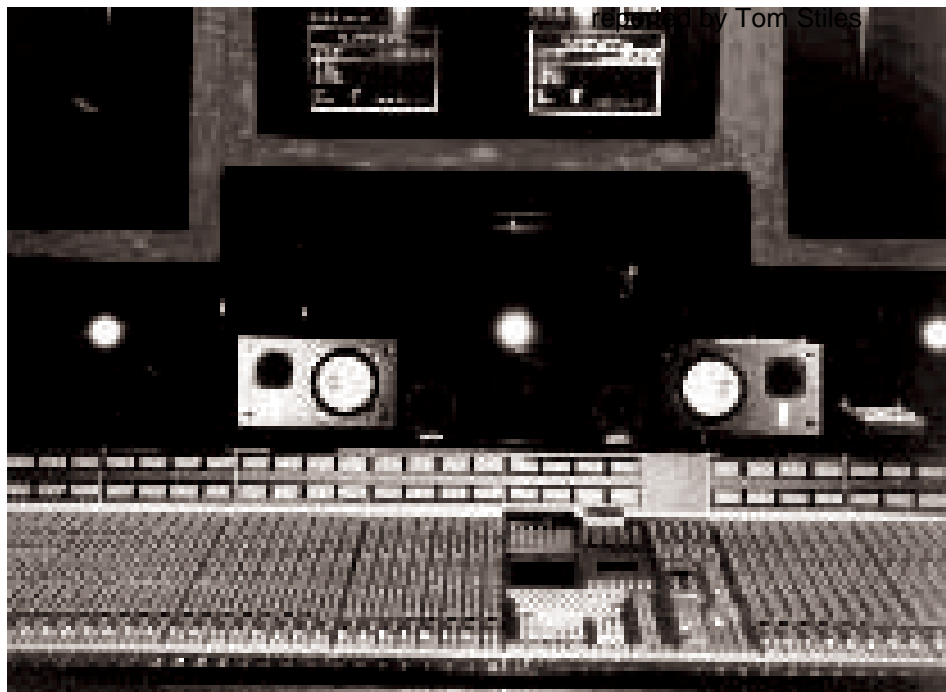
In March, the PNW section returned to Bad Animals Studios for a look at the completed and fully functioning Studio X. We first toured the facility in November 1991, when X was under construction, to see the structural detail before it was covered. Designer George Newburn of Studio bau:ton then commented on aspects of the design, including the vibration isolation and the massive wall separating studio and control room: fifteen inches deep from a single pour of 40 tons concrete and 20 tons rebar.

Chief Engineer Jim Haviland discussed features of the studio and its use since opening in March of 1992. Primary clients have been rock groups Heart and REM, with some orchestral scoring as well. The acoustic character of Studio X is variable, as each wall features a different treatment of diffusive and reflective elements. However, Haviland noted, sometimes setups are determined by sightline or other than acoustic factors. Isolation from other rooms is excellent, and also from city street noise outside, a minor exception being skateboard rumble.

Haviland led the near-record 70 attendees through the control room in two groups, to see Seattle's only SSL G-Series console,

and hear the custom TAD monitor speakers which are mounted in concrete speaker soffits for reduction of baffle vibration. He described power isolation systems, connections for audio, video and MIDI

throughout, and the "personal monitor" systems in the studio that allow artists to develop an individual mix of playback elements. Attendees were impressed with the eclectic collection of tube processing, solid-state, and computer-controlled gear available at Bad Animals.



The Solid State Logic console at Bad Animals. Photos by Rick Smargiassi

Bad Animals Studio Tour Highlights March

Chairman Al Swanson Location Recording 527-0318
 Vice-Chairman Van Browne Northshore Marketing 284-9699
 Acting Secretary Gary Louie UW School of Music 543-1218
 Treasurer Terry Denbrook KUOW 543-2710
 Committee Dan Mortensen Dansound 525-2113
 Committee Tom Stiles TS Audio 524-1389
 Committee Dane Butcher Symetrix 282-2555
 Committee Rick Chinn Symetrix 282-2555
 Committee Rick Smarglasi Seattle Center 684-7191
 Committee Greg Mackie Mackie Designs 800-258-6883

Pacific Northwest Section 1992-93 Officers and Committee Members

February 27-March 2, 1994 • 96th Convention, Amsterdam, The Netherlands

Jacob K. Javits Convention Center, New York, New York, USA

“Audio in the Age of Multimedia”

October 7-10 • 95th Convention

World Congress Centre, Melbourne, Australia

“Audio, The Spectrum”

August 24-28 • 4th Australian Regional Convention

Scanticon Conference Center, Snekersten, Copenhagen, Denmark

“Perception of Reproduced Sound”

June 28-30 • 12th International Conference

Sunshine City Convention Center, Ikebukuro, Tokyo, Japan

“Merging Technologies to Professional Audio”

June 23-25 • 6th Regional Convention

AES Calendar



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 ADDRESS CORRECTION REQUESTED

**PNW SECTION
 NEWSLETTER**