



Southern Minnesota

APRIL 1997

IEEE Southern Minnesota Section

IEEE Southern Minnesota Section Meeting

Speaker: Ron Freiheit
Wenger Corp.

Topic: Active Acoustics

Date: Monday, April 21

Time: 6:30 pm -- *pizza*
7:00 pm -- *presentation*

Place: Mann Hall
Mayo Medical Sciences Building
321 3rd Avenue SW
Rochester, Minnesota

Active Acoustics

By Ron Freiheit

Over the years there has been a desire to modify the "sound" of spaces such as auditoriums or concert halls. The acoustic demands for such spaces vary widely. In a general lecture hall, a desirable reverberation time -- the time required for the sound to decay 60dB, at 500Hz -- would be 500-800ms, to enhance clear speech. But in a concert hall, where a choir might perform, a reverberation time exceeding 2 seconds might be appropriate.

Passive attempts to affect a hall's acoustics through the use of drapes, curtains and other sound-absorbing elements are usually limited to varying the reverberation time by 1.0 to 1.5 seconds. These passive systems have significant disadvantages, in that they require time to deploy, and usually cannot be altered without causing a distraction.

Past attempts to use active acoustic systems met with varying success. Some systems produced unpleasant artifacts. Usually they suffered from "coloration", or sounded unnatural, because they were often on the verge of acoustic feedback.

In the past ten years, however, the advent of high-speed digital processing has led to major advancements in active acoustics. Digital systems can replicate another acoustic space so accurately that many professional musicians cannot tell the difference. And systems can be reconfigured at the touch of a button, without any of the drawbacks of mechanical systems.

During my presentation, I will conduct a small demonstration using a portable active acoustic system. The lecture hall will be transformed as a part of the demonstration, to sound like other spaces. If you're a musician, bring your instrument, and experience this effect first-hand!

Ron Freiheit is Product Manager for sound modules, acoustical panels and portable acoustical shells at Wenger Corporation, where he developed the V-Room Technology concept. Based on this work, he was awarded a patent for virtual acoustics.

Previously, Freiheit designed microprocessor-based automotive diagnostic systems at Owatonna Tool Company, where he was Engineering Manager for software development for all hand-held automotive diagnostics tools.

He received a B.S. in Electrical Engineering Technology from Southern Technical Institute, a division of Georgia Institute of Technology. He is a member of the Audio Engineering Society of America and the Acoustical Society of America; he is secretary of the Acoustical Society's Technical Committee on Architectural Acoustics.

Since 1980, Freiheit has operated Freedom Sound & Light, a multitrack recording facility he designed and built.

Mankato State University IEEE Meeting

Speaker: Ron Freiheit
Wenger Corp.

Topic: Active Acoustics

Date: Monday, May 5

Time: 6:30 pm

Place: Trafton Science Center
Room E225
Mankato State University

Ron Freiheit visits MSU to reprise his presentation on Active Acoustics. Pizza will be served.

The most convenient parking is in Lot 8, located across the street from Blakeslee Stadium, in the southeast corner of campus. After 4:00 pm, parking is allowed in the purple lot without a permit. From the parking lot, head north towards the bell tower. The building closest to the bell tower is the new extension of Trafton. E225 is on the 2nd floor.

IEEE Southern Minnesota Section Officers

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Section Election -- Proxy

Officers of the Southern Minnesota section of the IEEE will be elected at our May meeting. The following candidates have been nominated:

		<i>Write-In Candidate</i>
<input type="checkbox"/>	Chair: Ron Jensen	_____
<input type="checkbox"/>	Vice Chair: Rob Harveland	_____
<input type="checkbox"/>	Secretary: Bill Gorder	_____
<input type="checkbox"/>	Treasurer: Steve Kerchberger	_____

You may attend the May meeting to vote for these candidates, or for any eligible write-in candidate. You may also vote by completing the above form, and returning the entire newsletter to Bill Gorder (6751 Country Club Road SW, Rochester, MN 55902). Check a box to vote for the nominated candidate, or write in the name of any eligible member. **Sign your name** below the mailing label.