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**Acoustics of a large immersive environment, The Allosphere**

David Conant<sup>a</sup>, William Chu<sup>a</sup>, Thomas McNally<sup>a</sup>, K Anthony Hoover<sup>a</sup> and Stephen Pope<sup>b</sup>  
<sup>a</sup>McKay Conant Hoover, Inc., 5655 Lindero Canyon Road, Suite 325, Westlake Village, CA 91362, USA  
<sup>b</sup>Center for Research in Electronic Art Technology, U. C. Santa Barbara, 220 Santa Anita Road, Santa Barbara, CA 93105, USA

The Allosphere is a new audio/visual immersion space for the California Nanosystems Institute at The University of California, Santa Barbara, used for both scientific and performing-arts studies. This 3-story sphere with central-axis catwalk permits an unusually large experiential region. The huge perforated-metal visual-projection sphere, with its principle listening locations centered inside the sphere, introduces multiple considerations and compromises, especially since the ideal acoustical environment is anechoic.

Video projection requires opaque light reflectivity of the concave projection surface, while audio solicits extreme sound transmissibility of the screen plus full-range sound absorptivity outside the sphere. The design requires high-fidelity spatialization of a large number of simulated sound sources over a large region near the core, and support of vector-based amplitude panning, Ambisonic playback, and wave-field synthesis.

This paper discusses considerations that both conform to, and lie outside of, traditional acoustical analysis methodologies, and briefly reviews the electroacoustic systems design.