

Digital Domes: Theaters Without Borders

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Abstract

Dome theaters have historically been planetarium venues that projected points of starlight on a curved ceilings, but with the advent of new technologies and software, digital “fulldome” theaters are rapidly expanding and converting domes into an immersive virtual social experience augmented by computer graphics and scientific visuals. Hundreds of popular science museums worldwide have converted to digital fulldome projection systems and many new theaters are being built globally. Inflatable dome theaters travel to schools and venues like the SIGGRAPH VR Village. Digital dome theaters extend educational and cultural programming beyond night-sky astronomy, including science shows both recorded and interactive, live entertainment events, and more. Their computer graphics content can range from scientific visualizations to interactive art, and there is debate about whether their future is in the traditional world of science education, or in entertainment narratives and events. The debate is fueled by design and software challenges of the format.

The panelists will debate from their unique perspectives on traditional science education versus entertainment approaches to creating and funding dome content. They will provide their visions on the future of the digital dome industry, dome shows featuring big data science vs. live-action photography, scaling content across domes, producing live interactive experiences vs. digital playback, and global distribution issues. The panelists will demonstrate visuals in the dome theater in the SIGGRAPH VR Village venue chaired by panelist Ed Lantz.

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Keywords: Digital Dome, Fulldome, Hemisphere, Projection, Big Data Science, Supercomputing, Live Events, Distribution, Digital Dome Theater, Planetarium, Museum

1 Panelists

DONNA COX is the University of Illinois’s Director of the Advanced Visualization Laboratory (AVL) and the Illinois eDream Institute at the National Center for Supercomputing Applications and Professor at College of Fine and Applied Arts.

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She is a recognized pioneer in scientific visualization for public outreach and education and originator of the collaborative model of Renaissance Teams. Dr. Cox and her collaborators have inspired millions with cinematic virtual tours through astrophysics, earth sciences, engineering, and other data domains. AVL’s work is shared through digital-dome museum shows, high-definition documentary television programs, and IMAX movies. She has recently contributed scientific visualizations to IMAX 3D films “Hubble 3D” and “Space Junk” and fulldome productions “Dynamic Earth” and “Solar Superstorms”.

ED LANTZ is an entertainment technology engineer, entrepreneur, immersive experience designer and innovator in giant-screen digital cinema. He designed over a dozen dome theaters worldwide while at Spitz, Inc. He also led the product development of the SciDome digital planetarium which has sold over 100 units worldwide. Ed co-founded Vortex Immersion Media in 2007 to bring immersive and interactive experiences into mainstream arts and entertainment markets. Vortex also operates the Vortex Dome, the first commercial immersive media production studio and events venue located in downtown Los Angeles. Ed holds two U.S. patents on immersive theater technologies and is a founder of the trade association Immersive Media Entertainment, Research, Science & Arts (IMERSA). He co-authored the Digital Immersive Giant Screen Specifications, and is a SIGGRAPH VR Village Co-Chair.

RYAN WYATT is the Director of the Morrison Planetarium and Science Visualization at the California Academy of Sciences and Founding Director of IMERSA. Wyatt assumed his role at the Academy of Sciences in April 2007, and he has written and directed the institution’s four fulldome features, “Fragile Planet”, “Life: A Cosmic Story”, “Earthquake”, and “Habitat Earth”. Prior to arriving in San Francisco, Wyatt worked for six years as Science Visualizer at the American Museum of Natural History in New York City; previously, he opened technologically-advanced planetariums in Phoenix, Arizona, and Albuquerque, New Mexico. Wyatt’s professional interests include developing standards and “best practices” in the fulldome video community and publishing articles about the role of modern planetariums in bringing cutting edge science to a variety of audiences.

BRAD THOMPSON of Spitz Creative Media helped pioneer immersive theater production workflow in the mid/late 1990s at Spitz, and continues to update, innovate, and optimize the creative and technical pipelines for fulldome production and distribution. He is an artist, animator, director and supervisor and works with a team of animators, artists, and programmers to develop content for dome screens, immersion theaters, planetariums, and other immersive spaces. His fulldome credits include award-winners and some of the most popular and widely distributed in the world: “Oasis in Space,” “Dynamic Earth,” the “Zula Patrol” series, “Black Holes: the Other Side of Infinity,” and “Supervolcanoes.”

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