

EEE Research Seminar

Date: October 20, 2020 at 10:30 A.M.

LOCATION: via Zoom

<https://zoom.us/j/93122916204>

Meeting ID: 931 2291 6204

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Climate Change Adaptation for Infrastructure: A Grand Challenge for Civil and Environmental Engineering

The climate is changing globally and across the U.S., with different types and extent of change in different regions. Observed changes include sustained deviation from long-term trends in atmospheric temperatures, water temperatures, precipitation amounts, drought duration, storm frequency, wind velocities, snow melt timing, flood frequency and characteristics, permafrost melting, and other phenomena. These changes are affecting civil and environmental infrastructure and leading to demand for infrastructure modification.

The capacity for existing infrastructure to accommodate expected climate change is not well understood. Also not well understood are the types of alterations needed in current design guidelines and codes for new infrastructure to account for climate change impacts.

Climate change adaptation for infrastructure is critical for civil and environmental engineering, and for sustainable communities, in the 21st Century. Climate change adaptation is an area of significant focus in the earth science and climate science academic communities. However, there has been limited engagement by engineers in climate change adaptation, mostly in relation to coastal issues. Much more engagement and leadership of civil and environmental engineers is needed across the broad spectrum of relevant infrastructure issues. Civil and environmental engineers need to be prepared to lead in answering questions about risks of and sustainable responses to climate change.

Bio

David Dzombak is the Hamerschlag University Professor and Head of the Department of Civil and Environmental Engineering at Carnegie Mellon. The emphasis of his research and teaching is on water quality engineering, water resource sustainability, energy-environment issues, and climate change adaptation. Dzombak received his Ph.D. in Civil Engineering from the Massachusetts Institute of Technology in 1986. He also holds an M.S. in Civil Engineering (1981) and a B.S. in Civil Engineering (1980) from Carnegie Mellon, and a B.A. in Mathematics from Saint Vincent College (1980). He is a registered Professional Engineer in Pennsylvania, a Board Certified Environmental Engineer, a Diplomate Water Resources Engineer, a Distinguished Member of the American Society of Civil Engineers, and a member of the National Academy of Engineering.