



LECTURE

Monday 19 May 2025, 16:00

Auditorium of Institute of Steel Structures, Zografou Campus, NTUA

or you may attend online: <https://centralntua.webex.com/centralntua/j.php?MTID=m24e34d5ca89acc783585dae2d7610e4b>

FIBER-REINFORCED ELASTOMERIC ISOLATORS, OR: HOW I LEARNED TO STOP DESIGNING ONLY FOR THE RICH

Dimitrios Konstantinidis

Associate Professor and Vice Chair for Undergraduate Studies,
Civil & Environmental Engineering, University of California, Berkeley

ABSTRACT

The recent 2023 Turkey-Syria earthquake sequence resulted in over 50,000 fatalities, in stark contrast to the 57 deaths from the 1994 Northridge, California, earthquake. This disparity highlights the tremendous disproportion in earthquake impacts across different economic settings, where most fatalities occur in less privileged regions. Traditional earthquake-resistant technologies developed in wealthier nations are often prohibitively expensive in other seismic regions. Seismic isolation is recognized as a highly effective earthquake risk mitigation strategy; however, conventional isolation technologies are frequently too costly even for developed countries, limiting their application to high-importance structures. In response, recent efforts have aimed to develop low-cost seismic isolation systems, making this technology affordable and widely applicable to buildings of normal importance in both developing and developed parts of the world. This presentation will provide an overview of recent developments in Fiber-Reinforced Elastomeric Isolators (FREIs), a novel seismic isolator that utilizes carbon fiber reinforcement instead of steel. Costing less than one-tenth of traditional steel-reinforced elastomeric isolators, FREIs offer an affordable solution for enhancing earthquake protection in normal-importance buildings globally.

BRIEF CV

Dimitrios Konstantinidis is an Associate Professor in the Civil and Environmental Engineering Department at the University of California, Berkeley. He was born in San Francisco to Greek immigrant parents and moved to Greece at the age of three. After graduating from high school, he returned to the United States to pursue his education. He earned his Bachelor's, Master's, and Ph.D. degrees in Civil and Environmental Engineering from the University of California, Berkeley. He then held postdoctoral appointments at UC Berkeley and Lawrence Berkeley National Laboratory before joining McMaster University in Canada as a faculty member in 2011. In 2019, he returned to UC Berkeley as a professor. He currently teaches courses on structural analysis theory and applications, advanced structural dynamics, and seismic isolation and energy dissipation. Specializing in earthquake engineering and engineering mechanics, his research focuses on developing advanced seismic isolation and structural control systems and improving the seismic performance of nonstructural components. He integrates experimental testing with mathematical modeling to better understand and accurately characterize mechanical behavior, develop effective protection strategies, and help shape modern seismic design codes and standards. He serves as a voting member of the U.S. code committee for new buildings: ASCE 7-28 and its Task Committees on Nonstructural Components, Seismic Isolation, and Energy Dissipation. His publications include the book *Mechanics of Rubber Bearings for Seismic and Vibration Isolation*.

The lecture will be recorded and the video will be posted on the SSRS or ISS YouTube account. In the video, the names of the participants may be mentioned and their faces may be shown if they have their camera open, or their possible comments or questions may be heard. Attending the lecture implies automatic acceptance of the above.