

Understand and Utilize Complex Seismic Wavefields to Mitigate Earthquake Hazards: From Earthquake Ground Motion to Seismic Velocity Monitoring of Fault Zones



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27 July 2021



2:00 p.m.



Zoom Link: [Here](#)



Meeting ID: 992 4969 9833

Passcode: 983837

The rapid development of sensing technology contributes to the increasing availability and diversity of seismic recordings. From either natural or anthropogenic sources, seismic waves carry rich information about the medium they propagate through. Extracting and organizing such information enables us to probe the underneath structure and better understand the underlying physical processes. This talk will discuss how to utilize different kinds of seismic signals to mitigate earthquake hazards. More specifically, it will showcase how to use small, local earthquakes and even noise to understand the characteristics of earthquake ground motion and prepare us for the strike of a big one. It will also introduce how to use seismic signals generated from anthropogenic activities to monitor fault zones. The developed techniques show great potentials in other applications, such as structural health monitoring, CO2 sequestration, and enhanced geothermal systems.



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