Linbeck Distinguished Lecture Series

in Earthquake Engineering: Challenges of the New Millennium

Bringing together practitioners and researchers to tackle the challenges of protecting our nation's infrastructure against seismic hazards

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Hiroo Kanamori

John E. and Hazel S. Smits Professor of Geophysics
California Institute of Technology

Future Directions in Seismology for Earthquake Damage Mitigation

Friday, November 9, 2001
4PM – C100 Hesburgh Center Auditorium
Reception to follow the lecture

Seismology has made significant progress in understanding the basic physics of earthquakes. Together with this progress in seismology, modern technologies such as Global Positioning System (GPS) allow seismologists to forecast the overall long-term seismic activity. Yet, earthquakes continue to be a major threat to our society, as we have recently witnessed in Turkey, Taiwan and India. A major difficulty is that an earthquake involves a large number of elementary processes so that even if we understand the physics that governs each elementary process, the complex interaction between them makes accurate forecasts of earthquakes very difficult. I will discuss how we should deal with this inevitable uncertainty and use seismology effectively for mitigation of earthquake damage in modern society. To deal with the chaotic behavior associated with the earthquake process as well as the aftermath following a large earthquake, mitigation measures that utilize real-time methodology combined with structural control technology can be most effective. Also, to deal with relatively rare, but potentially devastating, large earthquakes, basic research on physics of faulting is required. I will present a few recent examples on real-time seismology and physics of earthquakes.

University of Notre Dame

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