



## Nathan M. Newmark

Faculty Member, Department of Civil Engineering, 1934-81  
Head, Department of Civil Engineering, 1956-73  
Chairman, Digital Computer Laboratory, 1947-57

*National leader in Civil Engineering education and research, and prominent consulting engineer*

*Fields of technical endeavor: structural engineering, engineering mechanics, numerical methods, materials, structural and soil dynamics, and earthquake engineering*

*Born: Plainfield, NJ, September 22, 1910*

*Died: Urbana, IL, January 25, 1981*

*Education: Rutgers University, BS, 1930  
University of Illinois, MS and  
PhD, 1932 and 1934, respectively*

*Founding Member, National Academy of  
Engineering, 1964*

*Member, National Academy of Sciences, 1966*

*Recipient of the National Medal of Science, 1968*

*Awarded honorary doctorates by Rutgers  
University, the University of Leige, the University  
of Notre Dame, and the National Civil Engineering  
Laboratory of Lisbon*

*Recipient of the Washington Award*

*Honorary member of the American Society of  
Civil Engineers*

*Recipient of five major national awards of ASCE,  
as well as numerous other awards and honors*



## Newmark Civil Engineering Laboratory

The University of Illinois at Urbana-Champaign  
Department of Civil and Environmental Engineering  
presents

The Fall 2025

# Newmark Distinguished Lecture



## Prof. Anne Kiremidjian

*The C. L. Peck, Class of 1906 Professor, School of  
Engineering  
Stanford University  
Stanford, CA*

## Structural Health Monitoring

**Monday, September 22, 2025**

**4:00 – 5:00 pm**

**NCSA Auditorium**

*Reception in Lobby immediately following*

### *Latino-Americana Tower in Mexico City*

*Seismic design by  
Nathan M. Newmark*

Newmark served as the earthquake design consultant on the forty-three story Latino-Americana Tower in Mexico City. A plaque is mounted on that building, which withstood strong earthquakes in 1957 and 1985 without damage, attesting to his design accomplishment.

The Fall 2025

# Newmark Distinguished Lecture

**Prof. Anne Kiremidjian**

The C. L. Peck, Class of 1906 Professor, School of Engineering  
Stanford University  
Stanford, CA

## Structural Health Monitoring

**Abstract:** A comprehensive structural health monitoring (SHM) system integrates multiple components: sensors, wireless communication modules, damage diagnosis and prognosis algorithms, and information delivery platforms. For such a system to be effective, each component must operate reliably, efficiently, and in coordination with the others. Moreover, the overall framework must remain scalable and easily upgradable to adapt to evolving technologies and applications.

This presentation reviews recent developments in the major components of wireless SHM systems. While notable progress has been made in sensor design, wireless communication, and computational capabilities—leading to broad acceptance and deployment—significant challenges persist in the areas of damage diagnosis, prognosis algorithms, and decision-support frameworks. Current methods often lack robustness, versatility, and the capacity to translate technical outputs into actionable insights for diverse stakeholders.

The presentation highlights these remaining challenges, particularly in damage assessment and decision-support, and discusses key impediments that continue to limit widespread practical implementation of comprehensive SHM systems.

**Bio:** Anne Kiremidjian is the C. L. Peck, Class of 1906 Professor in the School of Engineering at Stanford University where she teaches and conducts research on earthquake hazard, risk, and resilience modeling, and structural health monitoring for extreme events. She and her students have developed some of the first seismic hazard maps for California and all countries in Central America except Mexico, time-dependent earthquake occurrence models, dynamics based analytical fragility functions for buildings, and time-dependent fragility functions for deteriorating structures. In 1985 together with her students and faculty from electrical and mechanical engineering, she developed the first wireless accelerometer and the overall concept of wireless structural health monitoring for which Stanford holds a patent. Her research is published in more than 350 articles. She was the director of the John. A. Blume Earthquake Engineering Center at Stanford and has served on numerous committees and boards at Stanford, various university consortia and national and international organizations. She was a co-founder of two technology companies – K2 Technologies, Inc. and Sensametrics, Inc.

Professor Kiremidjian has given more than 50 invited, keynote and distinguished lectures. She has been recognized with the Extraordinary Achievement Award in Loss Estimation from Applied Technology Council, the C. Martin Duke Award from the American Society of Civil Engineers, the John Fritz Medal (one of the highest honors across all of engineering) from the American Association of Engineering Societies, the Lifetime Achievement Award in Structural Health Monitoring, and the Egleston Medal from Columbia University. In 2024 she was awarded an Honorary Doctorate from Aarhus University in Denmark. Most recently she received the Eugene L. Grant Teaching Award from Stanford University.

Dr. Kiremidjian is a member of the National Academy of Engineering, Distinguished Member of the American Society of Civil Engineers (ASCE), Honorary Member of the Earthquake Engineering Research Institute (EERI) and Honorary Member of the International Association of Earthquake Engineering (IAEE).