

## Morris E. Fine

Morris E. Fine, the Walter P. Murphy and Technological Institute Professor Emeritus of Materials Science and Engineering, is a pioneer in teaching the unifying concepts underlying all classes of materials: metals, ceramics, polymers, biomaterials, and electronic materials. He is a founder of Northwestern's materials science and engineering department, the first of its kind in the world. His research career at Northwestern has spanned a broad range of topics, from physical chemistry to mechanical behavior, and includes studies on metals and alloys, ceramics, and composite materials.



Fine received his PhD in physical metallurgy from the University of Minnesota in 1943. After working on the Manhattan Project in Chicago and Los Alamos, he worked for Bell Labs until 1954, when he came to Northwestern.

Fine is a member of the National Academy of Engineering and the American Academy of Arts and Sciences. He is a fellow of the Metals, Minerals, and Materials Society (TMS), ASM International, the American Ceramic Society, and the American Physical Society. He is an honorary member of the American Institute of Mining, Metallurgical, and Petroleum Engineers (AIME) and the Japan Institute of Metals.

He continues to publish and has more than 300 papers to his credit. He has received numerous awards, most recently the TMS 2009 Application to Practice Award for research that led to a new steel with better corrosion resistance, toughness, and welding properties. This steel was selected to be used for a new bridge in northern Illinois.



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**The second annual**

## Morris E. Fine Lecture

**Sponsored by the Department of  
Materials Science and Engineering**

**“Materials Research to Improve Electrical Storage  
for Transportation and the Electric Grid”**

Presented by

**Yet-Ming Chiang**

Kyocera Professor of Ceramics

Department of Materials Science and Engineering

Massachusetts Institute of Technology

**Thursday, October 7, 2010**

**Lecture 4 p.m.**

*Ryan Family Auditorium, Technological Institute*

*2145 Sheridan Road, Evanston*

*Reception to follow in the atrium, William A. and Gayle Cook Hall*

Robert R. McCormick School of  
Engineering and Applied Science  
Northwestern University

## “Materials Research to Improve Electrical Storage for Transportation and the Electric Grid”

Electrical energy storage has risen to prominence among the many energy technologies in which materials science plays a critical role. It is a technology that can enable the widespread adoption of electric vehicles and continued growth of renewable energy.

This talk will illustrate how materials-led advances in battery technology over the past decade have dramatically enlarged the scope of applications being addressed using electrochemical storage. Equally important, the limitations of current technology will be highlighted, as well as the enormous opportunities that lie ahead in both transportation and grid-scale storage. Cases where understanding of electrochemistry-materials interactions have led to improved battery storage materials, electrode architectures, and new device concepts will be discussed.

## Yet-Ming Chiang

Yet-Ming Chiang is Kyocera Professor of Ceramics in the Department of Materials Science and Engineering at Massachusetts Institute of Technology, where he has been a faculty member since 1984. His research and teaching focus on advanced materials and their role in technologies for energy storage and generation, medical devices, smart structures, and micro/nano electronics.



Chiang is a member of the National Academy of Engineering and fellow of the American Ceramic Society and the Materials Research Society. He has received the American Ceramic Society's Ross Coffin Purdy, R. M. Fulrath, and F. H. Norton Awards.

He has published 200 scholarly articles and a textbook on ceramic materials and holds 20 issued patents and 30 pending patent applications (excluding substantially identical foreign filings).

Chiang is a cofounder of four companies: American Superconductor Corporation, A123 Systems, Entra Pharmaceuticals, and 24M Technologies. With others at A123 Systems, in 2006 he received the R&D 100 Award and the R&D 100 Editor's Choice Award for developing a new lithium battery technology.

Chiang is a frequent speaker at international forums on materials science and battery technology, electric vehicles, energy, and entrepreneurship. He serves on several government panels, including the U.S. Department of Energy Basic Energy Sciences Advisory Board and the National Materials Advisory Board.

He holds SB and ScD degrees from MIT.