

Past Kilpatrick Lecture Speakers

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| 1965 Ronald Percy Bell | 1989 Jaqueline K. Barton |
| 1966 Lord Wynne-Jones | 1991 Mark S. Wrighton |
| 1967 Henry Eyring | 1992 Symposium: Conducting Polymers |
| 1968 Martin Karplus | 1993 Mary Anne Fox |
| 1969 John D. Roberts | 1995 Symposium: Synchrotron Radiation in Chemistry |
| 1970 Manfred Eigen, George B. Kistiakowsky | 1996 Symposium: Host-Guest Interactions and Supramolecular Structures |
| 1971 John R. Platt | 1997 K. C. Nicolaou |
| 1972 George C. Pimentel | 1999 Wolfgang Gopel |
| 1973 Roald Hoffman | 2000 Symposium: Computational Chemistry with John Pople |
| 1974 Richard B. Bernstein | 2001 Symposium: Nanoscience and Nanotechnology |
| 1975 Henry Taube | 2003 Barry M. Trost |
| 1976 William N. Lipscomb | 2004 Symposium: Enzyme Dynamics |
| 1977 Melvin Calvin | 2008 Fraser Stoddart |
| 1978 Symposium: Fast Time Spectroscopy and Chemistry | 2009 Susan V. Olesik |
| 1981 Symposium: Carbenes, Carbenoids, Cyclopropanes in Organic Synthesis | 2010 Symposium: Recent Advances in Polymer Science and Technology |
| 1982 Symposium: Chemistry at Metal Surfaces | 2011 George Whitesides |
| 1984 Jack Halpern | |
| 1985 David L. Beveridge | |
| 1986 Symposium: Polymers (in memory of Paul Flory) | |

IIT Chemistry
presents

The 2013 Kilpatrick Lecture Alternative Energy for Society & Third-World Applications

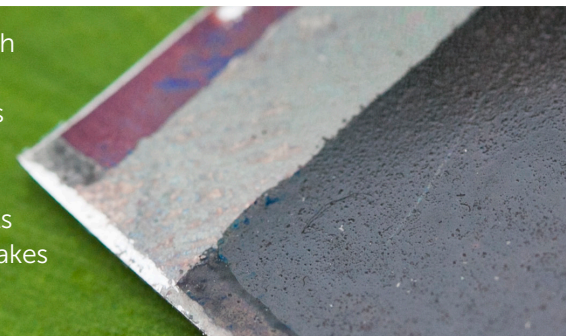


"The Artificial Leaf"

Daniel G. Nocera

Patterson Rockwood Professor of Energy,
Department of Chemistry
& Chemical Biology,
Harvard University

Nocera is a chemist whose research focuses on developing inexpensive new energy sources for the world's poor. Most famously, he created an "artificial leaf"—a silicon solar cell with different catalytic materials bonded onto its two sides—that makes fuel from sunlight.



The McCormick Tribune Campus Center (MTCC), McCloska Auditorium
IIT Main Campus, 33rd & State Street, Chicago
Wednesday, April 17, 2013

This event will be photographed and videotaped.
Illinois Institute of Technology may use photos and videos in promotional materials.



IIT College of Science and Letters
ILLINOIS INSTITUTE OF TECHNOLOGY

Chemistry

Welcome Note



Welcome to the 2013 Kilpatrick Lecture in chemistry. The theme of this year's Kilpatrick event is "Alternative Energy for Society & Third-World Applications." We are very excited to have such an outstanding speaker, Daniel G. Nocera, Patterson Rockwood Professor of Energy at Harvard University, whose work opens up new opportunities to achieve a secure energy future. Nocera's work has the potential to develop inexpensive new energy sources, most notably his "artificial leaf"—a silicon solar cell of catalytic materials that creates fuel from sunlight, capturing elements of photosynthesis.

The legacy left by Martin and Mary Kilpatrick has continued to inspire innovative teaching and creative research at IIT. A prominent example is our chemistry program, which provides a rigorous education that competitively prepares our students for careers in academia, industry, and government. Our research programs cut across traditional areas of science to solve real-world problems in catalysis, pharmaceuticals, therapeutics, materials, and sustainable energy.

On behalf of the IIT chemistry community, faculty, staff, and students, and the Kilpatrick lecture committee, I would like to thank you for joining us for this special IIT annual event.

Sincerely,

M. Ishaque Khan
Professor of Chemistry
Executive Associate Chair, Chemistry

2013 Kilpatrick Lecture Committee: Brant Cage, Chair; Richard Guan; Adam Hock

About the Kilpatrick Lecture



IIT's annual Kilpatrick Lecture honors Martin and Mary Kilpatrick, who were outstanding researchers and educators. Martin served as chair of IIT's Department of Chemistry from 1947–1960, leading the department to national prominence in both undergraduate and graduate instruction and research. As a scientist, Martin made his mark in fundamental chemical research in areas of physical and inorganic chemistry, and materials science. Mary was a chemistry faculty member from 1947–1964.

The Kilpatricks devoted their lives to the critical and creative study of chemistry, particularly chemical kinetics, acid-based reactions, and electrolyte chemistry. Before coming to IIT in 1947, Martin was a professor at the University of Pennsylvania and assisted Harold Urey in the Manhattan Project at Columbia University. Both Kilpatricks were Fulbright research scholars who studied in Denmark under the legendary J. N. Bronsted.

As chair at IIT, Martin guided the department during a period of vigorous growth and development in both teaching and research. Initially, the department occupied all of Wishnick Hall—one of the then three new buildings by Ludwig Mies van der Rohe that marked the beginning of today's modern Main Campus.

In recognition of the Kilpatricks's achievements at IIT, Martin's successor, Arthur E. Martell, and faculty colleagues instituted the now permanently endowed Kilpatrick Lecture.

Event Schedule

- 4 p.m. Welcome from Chair of the Kilpatrick Lecture Committee, Assistant Professor Brant Cage
- 4:05 p.m. Remarks from IIT College of Science and Letters Dean Russell Betts
- 4:10 p.m. Introduction of the Speaker, Daniel G. Nocera, by Brant Cage
- 4:15 p.m. 2013 Kilpatrick Lecture: The Artificial Leaf, Daniel G. Nocera, Patterson Rockwood Professor of Energy, Department of Chemistry & Chemical Biology, Harvard University
- 5:30-7 p.m. Reception and Poster Session, MTCC Ballroom
Refreshments will be served; all attendees are invited
- 6:30 p.m. Poster Session awards, Associate Professor Richard Guan
- 6:45 p.m. Kilpatrick Fellowship & Kilpatrick Scholarship awards, Professor M. Ishaque Khan, Executive Associate Chair, Chemistry



Daniel G. Nocera is the Patterson Rockwood Professor of Energy at Harvard University. He is widely recognized in the world as a leading researcher in renewable energy at the molecular level. His group pioneered studies of the basic mechanisms of energy conversion in biology and chemistry with primary focus in recent years on the generation of solar fuels. He has recently accomplished a solar fuels process that captures many of the elements of photosynthesis and he has now translated this science to produce the artificial leaf, which was named by *Time Magazine* as one of the top inventions of

2011. This discovery sets the stage for a storage mechanism for the large scale, distributed deployment of solar energy. Other areas of interest include the development of proton-coupled electron transfer and its application to radical enzymology, the development of new cancer therapies by creating nanocrystal chemosensors for metabolic tumor profiling, the creation of spin frustrated materials, which has culminated in the discovery of the quantum spin liquid, and the invention of molecular tagging velocimetry technique for the measurement of highly turbulent fluid flows.

He has been awarded the Eni Prize, Inter-American Photochemical Society (I-APS) Award, Burghausen Prize, Elizabeth Wood Award, United Nation's Science and Technology Award and, from the American Chemical Society, the Award in Inorganic Chemistry, and the Harrison Howe and Remsen awards for his contributions to the development of renewable energy. He is a member of the American Academy of Arts and Sciences and the U.S. National Academy of Sciences. He was named as one of the 100 Most Influential People in the World by *Time Magazine* and was 11th on the *New Statesman's* list on the same topic. Nocera is a frequent guest on TV and radio; he is regularly featured in print and he was in the feature-length film *Cool It*, which premiered in the U.S. in November 2010. His film with PF Pictures won the Jury Prize Award at the 2013 Sundance Film Festival. His 2006 PBS show was nominated for an Emmy Award, and the show was used as a pilot to launch the PBS NOVA show *ScienceNow*, which is now a regularly scheduled science program on PBS. In 2008, he founded Sun Catalytix, a company committed to bringing personalized energy to the non-legacy world.