

KAVLI INSTITUTE FOR THEORETICAL PHYSICS

Presents

the Thirty Fourth KITP Public Lecture

sponsored by Friends of KITP



Nate Lewis

Challenges for Global Energy

There are substantial challenges (technical, political, and economic) involved with widespread adoption of renewable energy technologies. Prof Nathan Lewis (Caltech) will present an overview of available fossil fuel resources and estimate the remaining years of supply of oil, gas, and coal for use in primary power production. These sources can then be compared to renewable energy technologies (wind, solar thermal, solar electric, biomass, hydroelectric, and geothermal) to evaluate the degree to which supply and demand may stimulate a transition to renewable energy technologies. A greenhouse gas constraint on total carbon emissions, in conjunction with global population growth, is projected to drive the demand for carbon-free power well beyond that produced by conventional pricing tradeoffs. This informs the R&D investments needed to produce the required quantity of carbon-free power by the 2050 timeframe, triggering evaluations of the energy potential of renewable energy resources and revealing scientific challenges to cost-effective production of carbon-free power by the 2050 timeframe.

Admission is Free
Limited Seating

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(805) 893-4111
for reservations.

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About the Speaker

DR. NATHAN LEWIS, George L. Argyros Professor of Chemistry, has been on the faculty at the California Institute of Technology since 1988 and has served as Professor since 1991. He has also served as the Principal Investigator of the Beckman Institute Molecular Materials Resource Center at Caltech since 1992. From 1981 to 1986, he was on the faculty at Stanford, as an assistant professor from 1981 to 1985 and as a tenured Associate Professor from 1986 to 1988. Dr. Lewis received his Ph.D in Chemistry from the Massachusetts Institute of Technology.

Dr. Lewis has been an Alfred P. Sloan Fellow, a Camille and Henry Dreyfus Teacher-Scholar, and a Presidential Young Investigator. He received the Fresenius Award in 1990, the ACS Award in Pure Chemistry in 1991, the Orton Memorial Lecture award in 2003, and the Princeton Environmental Award in 2003. He has published over 200 papers and has supervised approximately 50 graduate students and postdoctoral associates.

His research interests include light-induced electron transfer reactions, both at surfaces and in transition metal complexes, surface chemistry and photochemistry of semiconductor/liquid interfaces, novel uses of conducting organic polymers and polymer/conductor composites, and development of sensor arrays that use pattern recognition algorithms to identify odorants, mimicking the mammalian olfaction process.

Tuesday, December 4, 2007

8:00 pm

Kavli Institute for Theoretical Physics, Main Seminar Room