

The Dasari Lecture is an annual event sponsored by the Laser Biomedical Research Center to honor a scientist associated with the Spectroscopy Laboratory or its staff who has made important contributions to the field of spectroscopy. We thank the Dasari family, Coherent, Princeton Instruments, as well as many friends and colleagues of Dr. Dasari for their generous contributions to the endowment fund.

Past Awardees:

Charles Townes 2007

Takeshi Oka 2008

Changhuei Yang 2009

John E. Thomas 2010

Yukihiro Ozaki 2011

Robert Field 2012

Moungi Bawendi 2013

Katrin Kneipp 2014

Massachusetts Institute of Technology

The Laser Biomedical Research Center  
cordially welcomes you to the

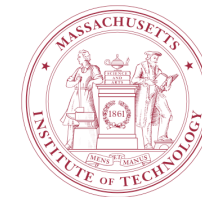
## 9th Annual Dasari Lecture

by

**Mildred S. Dresselhaus**

on

## The Dasari influence on Carbon Science



Tuesday, November 10, 2015 12:00 Noon  
MIT, (NE47-189)

Refreshments served following the lecture

*Professor Mildred Dresselhaus* is a native of the Bronx, and attended New York City public schools through junior high school, and Hunter College High School.

She began her independent career in 1960 as a member of the research staff at the MIT Lincoln Laboratory after her PhD at the University of Chicago (1958) and a two-year postdoc at Cornell University. During that time she switched from research on superconductivity to magneto-optics, and carried out a series of experiments that led to a fundamental understanding of the electronic structure of semi-metals, especially graphite. This led to her appointment as an MIT faculty member and eventually to appointment as an Institute Professor in the departments of Physics and Electrical Engineering.

She served as the Director of the Office of Science at the US Department of Energy in 2000-01, and has been an officer in many national organizations in physics, engineering, and related areas. Honors and awards include 31 honorary doctorates worldwide, and the National Medal of Science, the Nicholson Medal for Humanitarian Service, the Compton Award, the Fermi Prize, the Kavli Prize, and the U.S. Presidential Medal of Freedom.

Professor Dresselhaus's research over the years has covered a wide range of topics in condensed matter and materials physics. She is best known for her work on carbon science and carbon nanostructures, as well as nanoscience and nanotechnology more generally. She is also one of the researchers responsible for the resurgence of the thermoelectrics research field through her early work on low-dimensional thermoelectricity in the early 1990s. She co-chaired a Department of Energy study on "Basic Research Needs for the Hydrogen Economy" in 2003 and more recently co-chaired the National Academy Decadal Study of Condensed Matter and Materials Physics. She has co-authored more than 1700 publications including books, book chapters, invited review articles, and peer-reviewed journal articles.

Professor Dresselhaus remains involved in activities that promote the increased participation of women in science and engineering. She is an enthusiastic chamber music player where she plays violin and viola, and enjoys spending time with her husband, four children, and five grandchildren..

*Ramachandra Rao Dasari* was born in the Krishna district of Andhra Pradesh in India. He obtained his B.S. degree from Andhra University in 1954, his Master's degree from Benaras Hindu University in 1956, and his Ph.D. degree from Aligarh Muslim University in 1960, all in physics. Ramachandra joined the Physics faculty at the Indian Institute of Technology-Kanpur in 1962. He came to MIT as a fellow for two years beginning in 1966 to work in the newly formed group of Charles Townes and Ali Javan. He subsequently returned to IIT Kanpur, where he collaborated with Putcha Venkateswarlu to establish one of the largest laser laboratories for university research in India. During his 17 year tenure there, Ramachandra trained a large number of Ph.D. students and established relationships between IIT Kanpur and several national and industrial laboratories. In 1978, Ramachandra, his wife Suhasini and his children moved to Canada, spending a year each at the National Research Council, Ottawa, and the University of British Columbia, Vancouver. In 1980 he returned to MIT as a Visiting Professor in the Spectroscopy Laboratory. From 1992 to 2007 he served as its Associate Director. He retired in 2007 and continues to work part time.

Ramachandra's research contributions at IIT Kanpur include obtaining the first electronic spectrum of NSe and devising a new method for obtaining laser emission in copper vapor. His iodine vapor research foreshadowed laser emission in that molecule. As a physics panel member of India's University Grants Commission, he helped initiate new programs to improve undergraduate education, including teacher training workshops. IIT Kanpur has established the Dasari Ramachandra Rao distinguished lecture series in his honor.

In his work at MIT with Ali Javan, Ramachandra pursued the first measurements of laser frequencies in the far-infrared and, with Joel Parks, conducted a very high resolution study of N<sub>2</sub> laser transitions. Working with Takashi Oka at the National Research Council, he observed Dicke narrowing of infrared transitions for the first time. Working with Michael Feld, his numerous contributions include development of novel laser optical pumping techniques and, with Charles H. Holbrow and Daniel Murnick, studies to detect gamma ray anisotropy in optically pumped rubidium vapor. He is also largely responsible for development of the Spectroscopy Laboratory's Raman facilities for biomedical and physical science research.

Ramachandra is confidante to Spectroscopy Laboratory graduate students and professors, project organizer and troubleshooter. As Associate Director, he coordinated project and facility development at the MIT Laser Biomedical Research Center, an NIH Biomedical Research Resource, and the MIT Laser Research Facility, a physical science resource.

The Dasari Spectroscopy Laboratory Lectureship has been established in honor of Ramachandra's contributions to the Spectroscopy Laboratory. The proceeds of this endowed fund will provide support for an annual event at which a prominent scientist associated with the Spectroscopy Laboratory or its staff presents a lecture at MIT.