

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

Mildred Dresselhaus 2015

Massachusetts Institute of Technology

The Laser Biomedical Research Center  
cordially welcomes you to the

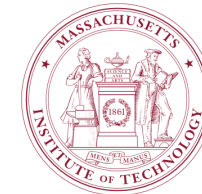
## 10th Annual Dasari Lecture

by

**Bruce Tromberg**

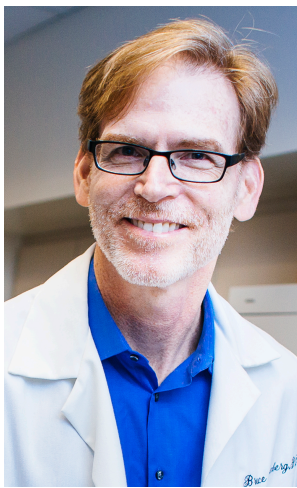
on

### **Wearable and Bedside Biophotonics: Technologies at the Intersection Between Personalized Medicine and Personal Health**



Tuesday, November 1, 2016 at 12pm  
The Grier Room at MIT  
Building 34, Room 401

Refreshments served following the lecture



*Doctor Bruce Tromberg* is the Director of the Beckman Laser Institute and Medical Clinic (BLI) at the University of California, Irvine (UCI) and principal investigator of the Laser Microbeam and Medical Program (LAMMP), an NIH National Biomedical Technology Research Center. He is a Professor in the departments of Biomedical Engineering and Surgery, co-leads the Onco-imaging and Biotechnology Program in UCI's Chao Family Comprehensive Cancer Center, and has been a member of the BLI faculty since 1990.

His research interests are in the development of quantitative, broadband Biophotonics technologies for characterizing and imaging tissue structure, function and composition across spatial scales. Dr. Tromberg has more than 300 publications and 17 patents in Biophotonics with applications to cancer, vascular disease, critical care, and neuroscience. He has received the Michael S. Feld Biophotonics Award from the Optical Society of America (OSA), the Directors Award from the International Society of Optical Engineering (SPIE), and is a fellow of OSA, SPIE, and the American Institute for Medical and Biological Engineers (AIMBE).

*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. 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 many 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 Physics for a few years. He continued as Principal Research Scientist in the Spectroscopy Laboratory. In 1992 he was appointed its Associate Director and continues to perform in that role today. He continues to work part time since 2008.

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 including observation of single atom laser and, with Charles H. Holbrow and Daniel Murnick, studies to detect gamma ray anisotropy in optically pumped rubidium vapor. In the Laser Biomedical Research Center his major contributions include noninvasive glucose detection, instant cancer diagnosis. He has more than 340 journal publications with H-index 93. He is also largely responsible for development of the Spectroscopy Laboratory's Raman facilities for biomedical and physical science research. Additional details of his personality and publications can be found from his website at [dasari.mit.edu](http://dasari.mit.edu).

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.