

## Neelkanth G Dhere



Dr. Neelkanth G. Dhere has been working at the Florida Solar Energy Center, University of Central Florida (UCF), since 1990 where he holds the position of Program Director. He is also a Joint Professor at the UCF Departments of Mechanical, Materials and Aerospace Engineering and Electrical and Computer Engineering. At FSEC he has installed the largest of University facility in the World for preparation of photovoltaic  $\text{CuIn}_{1-x}\text{Ga}_x\text{Se}_{2-y}\text{S}_y$  (CIGSeS) cells by selenization/sulfurization; prepared small area CIGSS cells with high efficiency (13.73%), developed 8.64% photoelectrochemical cells using thin-film PV cells and  $\text{RuS}_2$  photoanode for generation of hydrogen by splitting water, and studied module long-term exposure and module durability. He was a Visiting Senior Research Scientist at NREL, Golden, CO, during 1986-90. He was the first in USA to prepare high  $T_c$  superconducting thin films ( $T_c > 80\text{K}$ ) based on bismuth in 1988. He worked as a Professor, Materials Science and Engineering, Instituto

Militar de Engenharia, Rio de Janeiro, Brazil, during June 1971-86. At IME, he installed one of the few complete fabrication lines in the World to produce first-generation  $\text{CdS}/\text{Cu}_2\text{S}$  thin film solar cells and prepared a 30cm x 30cm fully encapsulated  $\text{CdS}/\text{Cu}_2\text{S}$  minimodule. He worked as a Research Fellow, Comissão Nacional de Atividades Espaciais (CNAE), São José dos Campos, SP, Brazil, during July 1970-71 and as a Head, Techniques Laboratory, Physical Research Laboratory, Ahmedabad, India, during 1966-70. At PRL and CNAE, he installed new laboratories and directed research on thin film deposition, hybrid microelectronics, wire and die bonding, photolithography and packaging, and space simulation.

Dr. Dhere has published two Book Chapters: N. G. Dhere and R. S. Bennur, Use of Solar Energy to Produce Hydrogen in "Hydrogen Fuel: Production, Transport and Storage," (Ram Gupta, Editor), CRC Press, (2008), pp. 227-282; and N. G. Dhere, High  $T_c$  Superconducting Thin Films, Chapter 1 in "Thin Films for Emerging Applications, Physics of Thin Films" Vol. 16, (M. H. Francombe and J. L. Vossen, eds), Academic Press, (1992), pp. 1-143. He holds one patent and has published over 50 papers in refereed Journals and over 150 papers in Conference Proceedings and other publications.

Dr. Dhere has provided guidance to a total of 41 (28 at UCF) M.S. and Ph.D. students.

Dr. Dhere is the Eldest Ph. D. in the Family Holding Guinness Book World Record for Most (All Five Members, Three Brothers and Two Sisters All Born to the Same Parents) Doctorates. He is a Fellow, American Vacuum Society (2003), Founder-President (1979-80) and Emeritus Member, Brazilian Vacuum Society. He was the Chairperson of the SPIE Reliability of Photovoltaic Cells, Modules, Components, and Systems Conference in 2008 and 2009, Chairperson, AVS Florida Chapter 2004, Program Chairperson, Joint Symposium of the Florida Society for Microscopy, Florida Chapter of the American Vacuum Society(AVS), March 2005, and Co-Chair, National Thin Film Module Reliability Team since 2002. He has received the 2003 UCF Research Incentive Award, and Institute of Electrical and electronic Engineers Region 3 Outstanding Engineer Award in 2002.

His presentation on: **Fabrication Issues, Reliability And Long Term Durability Of CIGS Thin Film PV Modules: A Review**