

Roland Winston

Education and Training

University Of Chicago	BS	1956
University of Chicago	MS	1957
University of Chicago	PhD	1963

Professional experience

In 2003, Dr. Winston joined the new University of California at Merced as a Professor and founding faculty member in the schools of Natural Science and Engineering. He is currently Distinguished Professor, and Director, California Advanced Solar Technologies Institute. Dr. Winston's research and teaching focuses on concentrating solar energy systems and applied nonimaging optics.

The concepts developed and the devices invented by Dr. Winston have formed the core of a new technology which carries the promise of making solar energy a truly viable energy source for society. Practical applications can be found in photovoltaics, natural lighting of buildings, water heating, space heating and cooling, desalinization, cooking and in the collection of solar UV radiation for the photocatalytic treatment of contaminated wastewater. Nonimaging optics proved to be an important tool in several other areas including astrophysics, elementary particle physics, infrared physics and vision research.

Dr. Winston has continued research on high energy physics, most recently at CERN (European Organization for Nuclear Research) in Geneva, where, in collaboration with Prof. Nicola Cabibbo and colleagues, the beta decays of the hyperon octet are being investigated.

From 1964 to 2003, Dr. Winston held various positions, including Chairman of the Department of Physics (1989-1995), at his alma mater, the University of Chicago. In 1965, in connection with designing Cerenkov radiation detectors for a high energy physics experiment, Winston discovered the ideal nonimaging concentrator now called the compound parabolic concentrator. He extended the principles of nonimaging concentration to the design of solar collectors in 1973.