

## **RUSS GAUDIANA**

Dr. Russell Gaudiana is Vice President of Research for Konarka Technologies, Inc., where he oversees R&D efforts and shares the responsibility for developing Konarka's extensive IP portfolio of over 200 patents and patent applications in chemistry, cell and module architecture and applications. He is also responsible for the acquisition and management of US government sponsored research programs in the company. When he joined Konarka in 2001, he brought 27 years experience in basic and applied research at the Polaroid Corporation where he also served as Director of Chemical Research Division from 1995 to 2001. Dr. Gaudiana holds 47 U.S. Patents and 30 US Patent Applications (published), and he has authored or co-authored more than 55 publications. Dr. Gaudiana led the research and development work needed to establish Konarka's viability as a company when it was founded in 2001. This work resulted in many patent applications, early prototypes and a multi-million dollar round of venture capital funding. His current responsibilities center on early stage research programs including semi-conducting polymers, electrodes, barriers, adhesives and photovoltaic wires. While employed at Polaroid, he helped design and synthesize unique polymers that were used in non-absorbing polarizer applications, such as polarizing beam splitters and lenticular sheet polarizers. He also led a team of scientists that helped develop the holographic imaging business for Polaroid, which evolved into holographic optical data storage and eventually led to the formation of a spin-off company called Aprilis. He also led a group of scientists that developed an electronic printer using an OLED printhead for silver-based instant imaging. As Director of Chemical Research at Polaroid, he led several projects in photo-imaging, including new silver, non-silver, and thermal imaging systems.

Dr. Gaudiana earned a Ph.D. in Photochemistry from the University of Massachusetts at Amherst in 1973, an M.S. Polymer Chemistry from Wright State University in 1969, and a B.S. in Chemistry from Seton Hall University in 1966. Before joining the Polaroid Corporation he was a Post-doctoral Fellow in Polymer Science and Engineering at The University of Massachusetts (Amherst). He currently serves as an Adjunct Professor at University of Massachusetts at Lowell; for four years he was an Adjunct Professor at Worcester Polytechnic Institute, and he has served on several editorial boards. He is currently the Executive Editor of the Journal of Macromolecular Science – Pure and Applied Chemistry.

### **Solar Power Wires Using Solid State Organic Photovoltaics**

*Dr. Russ Gaudiana, Konarka Technologies, U.S.A*

Processes and characteristics of a power producing flexible wire based on organic photovoltaics are described. A high speed coating process for PV wires that combines procedures used for coating photoactive layers on flat surfaces with those used for coating optical fibers has been developed. Continuous lengths of several hundred feet of PV active wire have been produced. The average efficiency of a 200 foot spool of wire, coated at 50 feet/minute, is 2.4 – 2.5%. The best performance observed thus far is 3.7% efficiency. The first examples of power producing fabric comprising OPV wires is also reported.