

PROFESSIONAL EXPERIENCE

- **Lightdrop Harvest, LLC**, St. Marys, PA
Chief Scientist, Managing Member: 9/12– present
Founded company in 2012 to pursue scientific consulting, specializing in photovoltaics, and in the design, installation, and testing of stand-alone and grid tied solar generators (LDH-Solar). Since 2018, emphasis has shifted to developing turn-key inspection systems for the powdered metal industry in the St. Marys area. Both conventional rules-based machine vision as well as machine vision based on the emerging field of “Deep Learning” (neural networks) have been employed in these systems (LDH-Vision)
- **Suniva, Inc.**, Norcross, GA
Vice President of R&D: 10/07 – 4/10; Chief Scientist: 4/10 – 7/12
Recruited as a core member to lead the R&D effort of start-up Suniva, a crystalline silicon solar company backed by venture-capital funding. In that role, hired the R&D staff, outfitted the 5,000 square foot R&D laboratory with state-of-the-art equipment to process silicon wafers into high-efficiency solar cells and to characterize that process at every step, introduced ion implantation for p-n junction formation to reduce the number of processing steps while increasing cell efficiency. By the end of 2009, the R&D staff of nine scientists, engineers, and technicians had produced production-worthy full-sized (156 mm pseudosquare) silicon solar cells with 19% efficiency in the R&D laboratory. Such cells are now in daily production at Suniva. As Chief Scientist, emphasis was on creating, protecting, and deploying new cell and module technologies for high-efficiency, production-worthy and cost-effective products. Included in the development activities were innovative, yet simple, n-type cell structures with efficiencies approaching 20%. Coordinated R&D activities with outside organizations. Played a pivotal role in the development of Suniva’s patent portfolio, working closely with patent attorneys to file and prosecute Suniva patent applications.
- **National Renewable Energy Laboratory**, Golden, CO
Senior Scientist II: 9/06 – 10/07
Led one priority project task team in the Silicon Materials and Devices Group in developing interdigitated back contact crystalline silicon/amorphous silicon heterojunction cell structures and a second team in developing methods for texturing silicon surfaces for light trapping. Served as contract monitor and NREL principal investigator for a project to produce solar-grade silicon feedstock from industrial waste conducted by the Institute of Physics and Technology, Kazakhstan, and sponsored by the International Science and Technology Center and the US Department of Energy.
- **Solar Power Industries**, Pittsburgh, PA
Vice President of Engineering: 10/03 – 9/06
Provided technical direction for adapting the processes and equipment used in producing dendritic web silicon solar cells to produce solar cells from 150 mm square multicrystalline silicon wafers, and in utilizing these cells in solar modules and systems. Issues regarding throughput, yield, automation, and cost were considered. Provided technical oversight in silicon ingot casting, wafering (156 mm), cell processing, process monitoring and testing. Directed a staff of eight scientists, engineers, and technicians which played a key role in achieving company milestones: shipping the first product (solar cells) near the end of the first quarter of 2004, producing 1.5 MW of cells in 2004, 3.5 MW of cells in 2005, and projecting over 10 MW of cells in 2006, producing over 100,000 wafers per month in early 2006 for internal use, and producing multicrystalline ingots for sale. Acted as Research Director of a \$300k program (one year) sponsored by the Pennsylvania Energy Development Authority aimed at utilizing non-traditional forms of silicon for multicrystalline casting. One outcome of this program is the definition of a process to utilize partially-purified silicon to make market-worthy solar cells.

- **EBARA Solar, Inc. (ESI)**, Pittsburgh, PA
Chief Scientist: 3/94 – 4/03
 Led teams composed of ESI employees and outside organizations (consultants, university groups, specialists from national labs) to develop technologies which were put into production: magnetic melt stabilization for significantly improved output from dendritic web silicon crystal growth furnaces, front-surface-field solar cell structure (PhosTop), and self-doping front silver contacts. Other prototype products include conformable solar laminates with high specific power, low-cost interdigitated back contact (IBC) solar cells, very low resistivity silicon web, and germanium web.
- **Westinghouse Electric Corporation**, Pittsburgh, PA
Senior Engineer/Fellow Scientist, Superconductive Electronics, Science & Technology Center: 4/89 – 3/94
 Fabricated high-speed niobium digital circuits and low-loss YBCO microwave delay lines and filters; led expansion of cryogenics cleanroom, including specification of equipment.
Senior Engineer, Microelectronic Devices, Research and Development Center: 2/84 – 4/89
 Fabricated and characterized silicon, gallium arsenide, and indium phosphide solar cells and materials, and characterized silicon MOSFET's, CCD's, and thyristors.
Senior Engineer, Photovoltaics, Advanced Energy Systems Division: 3/80 – 2/84
 Developed processes and testing methods for dendritic web silicon solar cells.
- **Carnegie-Mellon University**, Pittsburgh, PA
Research Physicist/Senior Research Physicist: 9/75 – 3/80
 Conducted research related to ocean thermal energy conversion (OTEC) in both closed and open systems, with experimental data acquired off the islands of Hawaii and St. Croix.

AWARDS:

Dr. Meier received a Westinghouse Signature Award of Excellence for engineering in 1987, 1989, and 1993. He was also named a finalist (along with a colleague) in the 2019 Ben Franklin BIG IDEA contest for Central and Northern PA.