

Opportunities in III-V Semiconductor Solar Cells, Steve Eglash

Explosive interest in solar and other renewable energy is being driven by concern over global warming, high oil prices, and geo-political instability. The solar energy industry has grown to \$15 billion and encompasses manufacturers and consumers worldwide. The diversity of solar energy solutions includes photovoltaic technologies such as wafer silicon; high-concentration photovoltaic using compound semiconductor devices; thin-film silicon, CdTe, and CIGS; and third-generation technologies such as organic PV and multiple exciton generation materials; as well as solar thermal technologies such as concentrator solar power. Electricity is the ultimate commodity and the relevant figure of merit is the total cost of generating electricity.

This Workshop will focus on CPV systems using multi-junction cells and will answer questions such as: What is CPV? Why have certain designs and architectures been chosen? What is the competitive landscape? This Workshop will address the technology and economics of multi-junction cells including cost, performance, design, and device physics. Manufacturing issues and opportunities will be thoroughly explored including similarities and differences between III-V PV and other III-V devices such as HBLEDs and GaAs ICs. This workshop will examine various manufacturing models including vertically integrated and fables, and will look at the cost drivers in each.



Steve is President and CEO of Cyrium Technologies, a solar energy startup company developing high-efficiency solar cells for concentrator photovoltaic applications. Steve joined Cyrium in 2007. Prior to joining Cyrium, Steve was a consultant and advisor to the National Renewable Energy Laboratory and the U.S. Department of Energy where he led a solar energy strategic planning project. Before that, Steve was a venture capitalist at Worldview Technology Partners where he emphasized investments in semiconductors, displays, lighting, and energy. Steve was also Vice President at SDL (JDSU) where he managed efforts in telecommunications, printing, optical amplifiers, and industrial lasers. He began his career as a research scientist at MIT Lincoln Laboratory.

Steve's experience includes general management, product marketing, and a technical background in materials, semiconductor devices, and fiber-optic components and subsystems. Steve is a frequent speaker at conferences such as the Photonics Market Opportunities Forum at SPIE's Photonics West. He was a speaker at the U.S. Senate Committee on Energy & Natural Resources Science and Technology Caucus. Steve is the two-time chairman of the OSA's Executive Forum at the Optical Fiber Conference. He is also involved in humanitarian projects such as the Tech Museum Awards for Technology Benefiting Humanity and the Global Social Benefit Incubator at Santa Clara University.

Steve received a Ph.D. and M.S. from Stanford University and a B.S. from the University of California at Berkeley, all in Electrical Engineering.

Cyrium Technologies is an Ottawa (Canada) based firm developing high efficiency multi-junction solar cells. The company is developing a proprietary breakthrough technology that significantly increases photovoltaic solar cell efficiency over state-of-the-art products. Cyrium received its first venture capital funding in 2004. The company's strategy is to become a leader in the design and production of high efficiency photovoltaic solar cells. Cyrium's product addresses the concentrated photovoltaic (CPV) market and enables a substantial cost reduction in solar power. As part of its product and commercialization strategy, Cyrium is working with leading CPV system manufacturers to address their worldwide product and business needs.

Cyrium's investors include Chrysalix Energy Venture Capital, Pangaea Ventures Ltd., and BDC Venture Capital.