Eric A. Schiff, Ph.D.

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Education

University of Chicago, James Franck Institute — Research Associate, 1978-1981

Amorphous semiconductor research with Hellmut Fritzsche; scanning transmission electron microscopy research with Albert Crewe and Stuart Solin.

Cornell University — Ph.D. in experimental physics, 1979

Thesis research with Albert J. Sievers: far-infrared spectroscopy of semiconductors.

California Institute of Technology — B.S. with honors, physics and English, 1971

Professional Experience

Advanced Research Projects Administration–Energy (ARPA-E) — Program Director, 2014-2017

- Developed the SHIELD+ program of 16 research projects (about $37 M) seeking marketable solutions for the problem of energy consumption by legacy single-pane windows. The excess heat needed for single pane windows amounts to about 2% of all US primary energy consumption.
- Managed a portfolio of ongoing research projects related to hybrid solar-thermal/photovoltaic energy conversion (the FOCUS program of 10 projects) as well as individual projects in methane detection, aluminum recycling, and thermophotovoltaic energy conversion.

Syracuse University — Professor of Physics, 1981-present

- Interdisciplinary research group leader. Our research has typically involved collaborators from other laboratories (First Solar, United Solar Ovonics LLC, Antek, BP Solar, Iowa State University, National Renewable Energy Laboratory, Forschungszentrum Juelich, University of Delaware,) and disciplines (engineering, chemistry, and biophysics).
- Advisor to about 20 graduate students and postdocs who now work in industry (IBM Research, DuPont, Sycamore Networks, etc.), government labs (NREL), and universities (Seton Hall, Chonbuk National, Monash National, University of Maryland).
- Principal investigator for externally funded research projects from government agencies (Department of Energy, National Science Foundation, and the Empire State Development Corp.) and corporations (United Solar Ovonic LLC, Boeing, Inc., First Solar, Inc., and SRC, Inc.).
- Created and taught courses “Solar Energy Science and Architectures”, “Space and time in elementary physics”.
- Research accomplishments include development of low-mobility solar cell device physics (for thin film silicon, dye-sensitized solar cells, CIGS, and CdTe), thermodynamic limits to light trapping in solar cells, hydrogen pairing effects for defect metastability in amorphous silicon, and the Einstein transport relation in amorphous silicon. Co-author of more than 100 refereed research publications with more than 3000 citations. Co-inventor on three US patents.

- Co-organizer of eight Materials Research Society Symposia and of two large international conferences (ICANS). Program committee member on others.

Syracuse University Associate Dean – Natural Sciences & Mathematics, 2003-2008

- Participated in management of the $110 M Life Sciences Complex construction project. The work included a major revision of the conceptual design that was essential to project authorization by the Board of Trustees. The handsome and highly functional Complex was completed within its budget.
- Chaired a University Senate committee that oversaw conversion of the university to a responsibility center management (RCM) budgeting system. Advisor to the Dean on the transition to RCM.
- Shared management responsibility for eight academic departments with about 150 professors, 1500 undergraduate students and 500 graduate students.

Innovalight, Inc. Engineer (part-time), 2007

- Research on silicon ink technology for emitters on silicon solar cells. This technology ultimately received an R&D 100 award in 2011, and Innovalight was purchased by DuPont in the same year. With Homer Antoniadis, Conrad Burke, and Francesco Lemmi.
- Co-inventor on 2 patents

Syracuse University Physics Department Chair, 1997-2003

- Management and budgeting responsibility for a department with 25 professors, 50 graduate assistants, and 20 professional and clerical staff members (about $6M/annum in direct costs).
- Led initiative that more than tripled the number of undergraduates majoring in physics.
- Expansion in sponsored research: Department faculty obtained new sponsorship for research projects in biophysics (NIH, Research Corporation), public science (NSF), information technology (NSF), cosmology (NSF), and solar cells (NREL). The BTeV collaboration for particle physics was founded, acquiring nearly 30 institutional collaborators before cancellation by then President Bush.
- Supervised national searches for five new professors.

Honors

- Fellow of the American Physical Society (Forum on Industrial and Applied Physics)
- Syracuse University Chancellor's Citation for Academic Excellence
- Invited speaker and tutorial instructor at national and international conferences
- Invited seminar and colloquium speaker at universities, government laboratories, and companies
- Departmental teaching awards