Nomination of Stephan Burdin for the AVS Excellence in Leadership

Stephan Burdin, Materials Research Laboratory, University of Illinois, sburdin@illinois.edu

Scientific/Engineering Accomplishments: Steve Burdin has been the main engineering support person for the MRL Central Research Facilities since June 2012 when Ernie Sammann, his mentor and 2003 George T. Hanyo Award winner, retired. In that time the use of the facility has grown to over 110,000 hours per year of use on almost 100 pieces of instrumentation by over 1000 researchers. Steve's dedication to the facilities means that he can regularly be seen in the lab from 8:30 AM until 7 PM or later, often answering the questions of post-docs, grads, undergrads and the occasional full professor regarding how to get the most from their use of the central research facilities. In addition to the engineering support he provides, he has chaired the Safety Committee and led many improvements in researcher safety (cameras in laboratory spaces, proper use of Personal Protective Equipment, identification and repair of unsafe and recalled equipment). Steve also encourages other staff by leading informal meetings where the staff can refine best practices and address areas of concern that require the attention of lab management.

Mentoring: Even with his significant responsibilities for the care and maintenance of the MRL Central Research Facilities, Steve has offered both direct and indirect guidance to a number of researchers in the MRL and other campus labs. For example, Steve and Ernie Sammann hired a German student to help on a nanofabrication research project they devised. The student, working under the Optional Practical Training of the US immigration system, hadn't considered continuing his education beyond the MS level. Steve was instrumental in encouraging the student to enter the Ph.D. program at Illinois, turning the nanofabrication project into surface physics research that resulted in five publications. The student now is a post-doc researcher at the Argonne National Laboratory, on track to a very productive scientific career. Steve routinely helps young researchers design and build electrical circuits necessary for their research. He even helped me as a young graduate student in 1994 by building a box for controlling valves in my toxic gas lab using latching relays to protect the vacuum chambers from venting in the event of a power outage. His dedication extends beyond the lab to projects he feels strongly about in the community. One of those areas is alternative energy. Steve was a member of the electrical engineering team for the 2007 and 2009 Illinois Solar Decathlon (http://solardecathlon.illinois.edu), lending his expertise and enthusiasm to the project. He is active in Newcomb Township government and in County zoning, offering technical clarification to assist in the formation of sensible policy regarding wind energy and other alternative energy ordinances. He even rebuilt his own home a few years ago to achieve higher energy conservation goals, including the use of a geothermal climate control system.

Biography:

DeVry Institute of Technology, Chicago, IL Electronics Engineering Technology B.S. (1990)

Professional Appointments

1990-present Research Engineer, Frederick Seitz Materials Research Laboratory, UIUC
1988-1990 Microprocessor Control Systems, Electronics, and Environmental Test Technician, Vorne Industries, Inc., Chicago, IL
1984-1987 Electrical Quality Control Lab Supervisor & Technician, JB Electronic Transformers, Inc., Chicago, IL

Papers

Martin Bettge, Scott MacLaren, Steve Burdin, Guo Wen, Daniel Abraham, Ivan Petrov, and Ernie Sammann, "Low-temperature vapour-liquid-solid (VLS) growth of vertically aligned silicon oxide nanowires using concurrent ion bombardment." Nanotechnology **20**, 15607 (2009).
Martin Bettge, Scott MacLaren, Steve Burdin, Daniel Abraham, Ivan Petrov, Min-Feng Yu, and Ernie Sammann, "Importance of line and interfacial energies during VLS growth of finely stranded silica nanowires." Journal of Materials Research **26**, 2247 (2011).
Martin Bettge, Scott MacLaren, Steve Burdin, Richard T Haasch, Daniel Abraham, Ivan Petrov, Min-Feng Yu, and Ernie Sammann, "Ion-induced surface relaxation: controlled bending and alignment of nanowire arrays." Nanotechnology **23**, 175302 (2012).