

June 2005

Two Distinguished Alumni Inducted into the Francis Crowe Society

Matthew Graf



Matthew Graf ('78) shown here with his wife Mary (LeClair '75) received his M.S. in Computer Engineering from Syracuse University. At Syracuse, Matt's thesis, entitled, "Boundary Scan Design", was a description of a test strategy employing scannable latches at physical boundaries that eventually became an IEEE standard called 1149. This testing methodology is now commonly used throughout the industry.

Working for IBM now for 26 years, Matthew has managed about a dozen chip designs, the majority of which were high speed SRAMs, architected to be used in server caches within machines made by IBM, SUN, HP, SGI, and others. Matt is presently managing an enablement organization producing Process Design Kits (PDK's) that are the fundamental workbench required to design in IBM's processes, from Base CMOS to Silicon Germanium. IBM's PDK's are the standard in the industry for RF and Analog/Mixed Signal designs.

Matt has also been a strong supporter of his alma mater, involved with campus recruiting here at the University of Maine, and is a member of the Industrial Advisory Committee for the School of Engineering Technology.

Scott Semle

Scott Semle ('80) received his B.S. degree in Electrical Engineering. While at the University of Maine, he participated in varsity swimming and was a founding member of the Black Bear Judo Club. He received the University of Maine Oak Scholarship Award for Public Speaking in 1978.

Scott (shown with his wife Debbie) is Vice President and Chief Operating Officer at The Baker Company. Prior to this, Scott worked as a Manufacturing Engineer for Smith and Wesson and GTE/Sylvania, Engineering Supervisor for Sprague Electric Co., Engineering Manager and Plant Manager for The Irwin Co., and Director of Operations and VP of North America Operations for American Tool Companies.

Scott served on the Board of Directors for the Maine Metal Products Association. He has been affiliated with the Workplace Education Grant Committee and the Ergonomics and Productivity Committee at the University of Southern Maine. Scott also served on the Programs Committee of the United States Cutting Tool Association and was involved in the Toxics Use Reduction Project with the Maine Natural Resources Council. Scott was a founding member of the Maine DEP Pollution Prevention Project and most recently, in 2005, he was a featured guest speaker for the American Society for Quality.

In 1995 Scott received the Industry Week Magazine-Industry "Unsung Hero" Award, the Maine Dept. of Environmental Protection Achievement Award and was appointed to the State Commission on Non-Regulatory Environmental Solutions. Scott also received the Federal EPA Environmental Leadership Award and the Maine Wastewater Treatment Association Annual Award in 1996.

Scott resides in Hollis, Maine with his wife Debbie. They have been married for 24 years and have three sons. Eric and Aron attend the University of Maine. Aron is majoring in Electrical and Computer Engineering while Eric is a Computer Science major. Evan is a high school sophomore who is also interested in studying engineering at The University of Maine. Scott is a strong supporter of the Electrical and Computer Engineering Department.



UMaine Graduate Student Receives Award for Research



Jeremy Thiele, a M.S. student in Electrical Engineering, earned an award for his research on patented sensor technology that can operate at 250 degrees Celsius and detect hydrogen gas. Monitoring the performance of jet engines and other combustion technologies requires sensors that can operate at high temperatures.

Jeremy worked with Mauricio Pereira da Cunha, Assistant Professor in Electrical and Computer Engineering, who developed the sensor. Jeremy successfully made and demonstrated a hydrogen sensor using langasite crystals.

Langasite is a family of materials that have several beneficial properties for sensing purposes and has proved to be more sensitive and stable at high temperatures than quartz crystals.

In his project, Jeremy equipped a langasite sensor with two electrodes made of the element palladium and monitored it for 16 weeks. The sensor detected hydrogen gas at several different concentrations. Langasite has proven to work reliably at 750 degrees C.

Jeremy received the student award from The Institute of Electrical and Electronics Engineers (IEEE) August 24-27, 2004 in Montreal for the presentation of his research.



2005 Annual IEEE Spring Banquet

This year's IEEE banquet was held on April 24, 2005 in the Buchanan Alumni House with about 60 people participating. The ECE department uses this occasion to recognize and give scholarship awards to individual students. Awards totaling \$95,890 were made possible by the support of Microelectronic Consortium member companies, named scholarships, and by the generous support of our alumni. Brian Conroy ('86) from Central Maine Power was the keynote speaker. This year musical performances by the students were added to the program. Priyanth Chandrasekar and Giang Nguyen performed a duet on the piano, Timothy Monk played the guitar and Giang Nguyen concluded with a solo on the piano.

Graduating Class of 2005

This May we had 18 graduating from which nine have accepted employment with salaries up to \$63 K. Five are going to graduate schools.



Left to Right: Row 1, Joshua Schoolcraft, Bennett Meulendyk, Jeremy Sells, Tim Monk, Charles Brickham, Janice Duy, Stephanie Slusarz, Row 2, Brendan Browne, Scott McGregor, Ben Martin, Jared Jordan, Jeff Frost, Ryan Curran, Chris LaPlante.

Grants Received

Rosemary Smith, "Microinstrument for Nucleic Acid Sequencing via Nanopores," The David and Lucille Packard Foundation, Year 3, \$233,957, January 30.

J. Vetelino, "REU Site: Sensor Science and Engineering," Year 1 of 3, NSF, \$76,656, February 28.

P. Natarajan and M. Musavi, "Introducing Technology Based Interactive Learning and Assessment in an Undergraduate Engineering Course," IT Faculty Technology Fund, \$1,245, March 17.

D. Hanselman, "Undersea Weapon Electric Motor Design and Optimization," Office of Naval Research, \$192,000, March 30.

M. da Cunha, NSF REU Supplement, "Career: Acoustic Wave Filters for High Frequency Wireless Communication Applications," NSF, \$6,000, April 1.

M. da Cunha, "The Behavior and Properties of LGX Crystals at High Temperature," Petroleum Research Fund, \$119,967, April 1.

R.L. Smith, "Micro/Nano Tech Lab Renovations," \$27,000, College Curriculum Fee.

M. da Cunha, "Wireless Software Package," \$3,000, College Curriculum Fee.

D. Hummels, "Soft Impact Location Capability (SILC)," The Naval Undersea Warfare Center, \$24,834, May 6.

Publications

S.E. Turner, R.B. Elder, D.S. Jansen, and D.E. Kotecki, "4-Bit Adder-Accumulator at 41-GHz Clock Frequency in InP DHBT Technology", IEEE Microwave and Wireless Components Letters, Vol. 15, No. 3, p. 144-146, March 2005.

T. Vassiliev, R. Bayer, W. Congelton, R. Bushway and J. Vetelino, "Heavy Metal Concentrations in Lobster (*Homarus Americanus*)," National Shellfisheries Association Program and Abstracts of the 97th Annual Meeting, p. 54, April 2005.

J. Thiele and M. da Cunha, "Platinum and Palladium High-Temperature Transducers on Langasite," IEEE Transactions on Ultrasonics, Ferroelectrics, and Frequency Control, Vol. 52, No. 4, pp 545-549, April 2005.

P.J. Costanzo, E. Liang, T.E. Patten, S.D. Collins and R.L. Smith, "Biomolecule Detection via Target Mediated Nanoparticle Aggregation and Dielectrophoretic Impedance Measurement," *Lab on a Chip*, Vol. 5, No. 6, pp. 606-610, June 2005.

A. Delic'-Ibukic' and D. Hummels, "Continuous Digital Calibration of Pipeline A/D Converters," Proceedings of IEEE International Instrumentation and Measurement Technology Conference, Ottawa, Ontario, Canada, pp. 2-6, May 2005.

S. Kennedy, D. Hummels, D. Moretti, "A Real-Time Polyphase Digital Signal Processing Algorithm for Detecting and Time-Tagging Surface Impact Acoustic Signatures," Proceedings of the Undersea Defense Technology (UDT) Conference, Amsterdam, The Netherlands, June 2005.

Other

Since March the faculty have been involved in nine proposals for a total of about \$1,400,000.