In memoriam: Thomas R. Anthony

Thomas R. Anthony, a researcher at the GE (General Electric) Research & Development Center for more than 36 years, died December 12, 2017, in Schenectady, N.Y. He was a member of the US National Academy of Engineering "for outstanding application of diffusion phenomenology to the development and fabrication of materials and devices." He was the first recipient of the Materials Research Society (MRS) David Turnbull Lectureship Award in 1992, and he received the American Physical Society James C. McGroddy IBM Prize for New Materials in 1999. He was in the top tier of GE patent holders, with more than 160 patents, including basic patents for using thermomigration to produce high power semiconductor devices and for using chemical vapor deposition (CVD) for the production of gem-quality diamonds, including isotopically pure carbon-12 for enhanced thermal conductivity.

Tom was born in Pittsburgh in 1941. His mother was a secretary and his father was a professor at Carnegie Mellon University. He received his undergraduate degree in physics and mathematics from the University of Florida, and his MS and PhD degrees in applied physics from Harvard University, where he was one of David Turnbull's first graduate students. After earning his PhD degree in 1967, he joined the GE R&D Center. He received the Coolidge Fellowship, GE's highest technical honor in 1978, and he earned many other awards from GE, professional societies, and industry.

His contributions to science and engineering, from his graduate thesis research at Harvard through his career at GE, resulted in 199 publications and 169 patents. He described his approach to research in his 1992 MRS Turnbull Lecture as (1) to think deeply about the problem at the atomic level, (2) to create a clean physical model, and (3) to conceive simple experiments to test that model. His early work on the thermomigration of liquid-metal droplets in silicon for device fabrication and his later work on CVD for diamond synthesis demonstrated his successful application of this approach. In the diamond work, for example, he was able to understand the growth rate of diamond nuclei in terms of surface-diffusion processes, and he was the first to point out the importance of carbon solubility in the gas phase during the CVD process. GE's diamond business, in particular, benefited greatly from his technical contributions, and GE received major royalties from licensing several of his patents. He also helped launch several new businesses based on his discoveries. He shared his knowledge and experiences in numerous short courses and invited talks, as well as in his professional publications.

After retiring from GE in 2004, Tom transferred his energies and boundless curiosity into his other interests. He kept abreast of the latest research in fields ranging from nutrition and exercise to investing and technology. He started an email list sharing his readings and conclusions with more than a hundred people. Always hard-working and extremely disciplined, he spent the last decade of his life eating a plant-based diet and doing long-distance cycling. He contributed to the design of an elliptical bicycle developed by an Australian company, leading to his last issued patent in 2017. Tom also enjoyed playing a variety of musical instruments, including the piano, violin, classical guitar, and the bagpipes.

Tom and his wife Angela met during his graduate years at Harvard and were married for 50 years. His intellectual brilliance as well as focus, tenacity, and discipline are reflected in his legacy of professional and personal accomplishments.

R. Alben, G.S. Cargill III, and **F. Spaepen**

Adaptation and Evolution of Biological Materials Symposium to be held January 5

www.sicb.org/meetings/2019

The Adaptation and Evolution of Biological Materials Symposium, held by the Society for Integrative & Comparative Biology (SICB), will be held January 5, 2019, in Tampa, Fla., USA. It is part of the SICB Annual Meeting 2019, to be held January 3–7.

Although the characterization of biomaterials performance has progressed in the past decades, our understanding of how performance varies and is shaped across ecology or evolutionary history lags behind. How do materials respond, adapt, and evolve with the environment and organisms? The speakers address many questions across a range of systems and organizational scales, from skeletal form-function evolution to material-mediated vibration sensing, structural color, and plant and animal anchoring tools. The symposium highlights emerging work on structure–function relationships and fabrication of biological materials, while showcasing how modern materials characterization tools can augment integrative studies of organismal adaptation and evolution. It comprises lectures and a lunch workshop.

The registration deadline for presenters is November 6. Discounted preregistration for attendees ends December 4. More information can be accessed from the event website at www.sicb.org/meetings/2019.

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