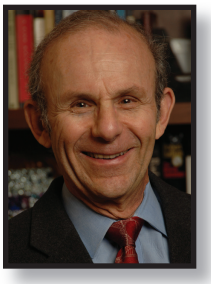
David Seidman Delivers the 2008 David Turnbull Lecture

David Seidman, Walter P. Murphy Professor of Materials Science and Engineering at Northwestern University and founding director of the university's Center for Atom-Probe Tomography, delivered the 2008 David Turnbull Lecture at the 2008 Materials Research Society's fall meeting in Boston, Massachusetts. Seidman joined TMS in 1986 and was named a Fellow in 1997.



The David Turnbull Lectureship recognizes the career of a scientist who has made outstanding contributions to understanding materials phenomena and properties through research, writing, and lecturing.

"I feel honored to have received the David Turnbull Lecturer award. Starting from the time I was a Ph.D. student at the University of Illinois at Urbana-Champaign I read articles by Turnbull and his co-workers and students, which were scientifically inspiring," Seidman said. "My Turnbull Lecture presented an atomic scale experimental and simulation study of basic problems that (Turnbull) worked on for 50 years starting in 1948, which I trust he would have enjoyed."

Seidman is a pioneer and current leader in the use of field-ion microscopy (FIM) and three-dimensional atom-probe tomography to study interfacial, segregation at grain boundaries and heterophase interfaces, and precipitation phenomena in metallic alloys and metal-silicon reactions on an atomic scale. His continual research has led to major advances in the understanding of the behavior of vacancies and self-interstitial atoms in metals.

Early in his career, Seidman and his thesis advisor Robert W. Balluffi discovered a correlation between the chemical potential of a vacancy and the efficiency of dislocation climb. He established the first known laboratory in the world to use FIM to study quantitatively the fundamental properties of point defects in quenched or irradiated metals. Since joining the faculty at Northwestern University in 1985, he has developed procedures to solve the difficult problem of using the FIM, combined with transmission electron microscopy to study grain boundaries in the vicinity of a tip. He also has developed computer simulations of grain boundary segregation.

Seidman has published nearly 340 articles, edited eight books, delivered numerous symposia and conference presentations, and was involved in organizing 25 conferences. He was honored at the TMS 2009 Annual Meeting & Exhibition in February with the "Structural Materials Division Symposium: Advanced Characterization and Modeling of Phase Transformations in Metals in Honor of David N. Seidman on his 70th Birthday" (see End Notes on page 88).

TMS Remembers Those Members Who Have Passed

TMS would like to express the deepest sympathy to the families of several long-time members who have passed away. Each of the members, in some way, had contributed to the field of materials science and engineering.

Those members are:

Terry F. Bower, member since 1964

Gordon M. Cameron, member since 1987

Louis F. Coffin, Jr., member since 1949

Richard G. Connell, Jr., member since 1969

Roderick Esdaile, member since 1994

Thomas R. Ingraham, member since 1959

W.R. Kelly, member since 1939

W.W. Krysko, member since 1960

Robert E. Lund, member since 1948

David J. Meuleman, member since 1976

Myron M. Rosenthal, member since 1976

Oswald J. Wick, member since 1936

Millie Dresselhaus Receives the Vannevar Bush Award

Millie Dresselhaus, Institute Professor and Professor of Physics and Electrical Engineering at Massachusetts Institute of Technology (MIT), was named the 2009 Vannevar Bush Award recipient by the National Science Board. She is scheduled to receive the Vannevar Bush Medal on May 13 during an awards ceremony at the U.S. Department of State in Washington, D.C.

The Vannevar Bush Award is presented annually to an individual who, through public service activities in science and technology, has made an outstanding contribution toward the welfare of mankind and the nation. Dresselhaus will be honored for her leadership through public service in science and extraordinary contributions in the field of condensed-matter physics and nanoscience.

A pioneer in the field of condensed matter and materials physics, Dresselhaus joined MIT in 1968. She is known for her work on carbon science and carbon nanostructures and is credited for being one of the researchers who caused the resurgence of the thermoelectrics research field 15 years ago. Her investigations into superconductivity, the electronic properties of carbon, thermoelectricity, and the new physics at the nanometer scale have led to numerous scientific discoveries.

Dresselhaus was the first woman to receive the title of Institute Professor at MIT and in 1970 co-founded the Women's Forum at the university. (Photo by Ed Quinn).

Meet a Member: Eric Nyberg, Releasing Materials Science into the Wild

By Francine Garrone

Hunkered down since before dawn on a colorful blanket of leaves covered by an early frost, Eric Nyberg prepares to draw back the string of his die-cast magnesium bow. Less than 25 feet from him stands a six-point bull elk. The orange glow of the sun rising above the mountains in eastern Washington illuminates the massive size of the elk and brings it into Nyberg's focus. He waits for the perfect moment and releases the arrow—success.

Nyberg, a senior research scientist at the Pacific Northwest National Laboratory in Richland, Washington, has been hunting for nearly 30 years in the state of Washington, and has taken deer and elk from several northwest states. His love for the nature-oriented sport has earned him two places in the *Pope & Young Club Bowhunting Big Game Records of North America* record book.

"I began hunting as a teenager in Washington State," he said. "In eastern Washington, hunting, fishing, and other outdoor activities are very popular due to the open expanses, beautiful mountains, and abundant wildlife."

Prior to 2003, Nyberg did most of his hunting during rifle season. It wasn't until then that he was able to draw a "Non-Resident" elk hunting permit ("tag") for the state of Montana and became interested in archery hunting. "Drawing the tag was going to be a hunting opportunity I would not miss, only problem was that it occurred during the rifle hunting season in Washington State," he said. "Therefore, I decided to take up archery hunting." Nyberg said he practiced with his new bow all summer and within the first month of becoming an archer he landed a six-point bull elk in Washington State. That same year he used the coveted "Montana tag" to take another six-point bull elk with a rifle. Since then, he has hunted exclusively with a bow and arrow.

"I love hunting because it is a challenge—you versus nature," he said. "It is an opportunity to enjoy the outdoors in solitude while at the same time attempting to defeat oftentimes extreme odds."

Figure 1. Eric Nyberg prepares for a day of elk hunting in the wooded mountains in eastern Washington.

According to Nyberg, the average success rate for archery elk hunting is about 20 percent. However, with extreme practice and many hours afield the odds increase, and in his case, reach 50 percent or higher. But even when an archer's odds of successfully shooting an elk are low, the real reward is the time spent alone deep in thought. "You can enjoy the sights, the smells, and the sounds of the forest and mountains," Nyberg said. "When the sun rises and you are looking at a 12,000 foot mountain in the distance with snow-encrusted glaciers glowing orange with the day's new sun, you really have to just sit back and enjoy those moments."

Even though hunting is an activity rarely associated with a laboratory, it does have a materials science aspect to it. Nyberg, who is past chairman of the Magnesium Committee, has drawn on his materials science background and incorporated it into his hunting experiences.

"Certainly as a metallurgist with a keen interest in lightweight materials, I searched for the bow that combined hunting and materials technology," he said. "I found a very nice bow made of die-cast magnesium that has served me very well! Fiber optic technology provides sights that can be used under very low light conditions and carbon fiber arrows that are strong as steel are all areas of materials interest to the engineer." Nyberg said even the clothes he wears are advanced materials, providing carbon assisted scent prevention.

Nyberg proudly displays proof of his deer and elk hunting successes throughout his home. "Every animal I have taken during my hunting adventures I have made the most of," he explains. "The meat is processed and nothing beats an elk steak with a glass of red wine and pepperoni and cheese while watching a football game." The animal hides are tanned and used for decoration or craft projects such as book covers, he said. The largest of his trophies are mounted on the wall for display and include "Rudolph" and "Randolph," the two six-point elk he took the year he drew the Montana tag.

For Nyberg, hunting is a chance not only for him to do something he has enjoyed since a teenager, but also a chance to spend time with his oldest daughter and enjoy nature. "I hunt with my eldest daughter, Hanna, who has hunted deer for five years and successfully took her first deer at the age of 13," he said. "For me, the opportunity to take part in a sport such as bowhunting offers the opportunity to enjoy nature at its best—wild and undisturbed. The passion I have for the sport is something I have passed on to my children and hopefully will to my grandchildren someday."

Each month, *JOM* features a TMS member and his or her activities outside of the realm of materials science and engineering. To suggest a candidate for this feature, contact Francine Garrone, *JOM* news editor, at *fgarrone@tms.org*.