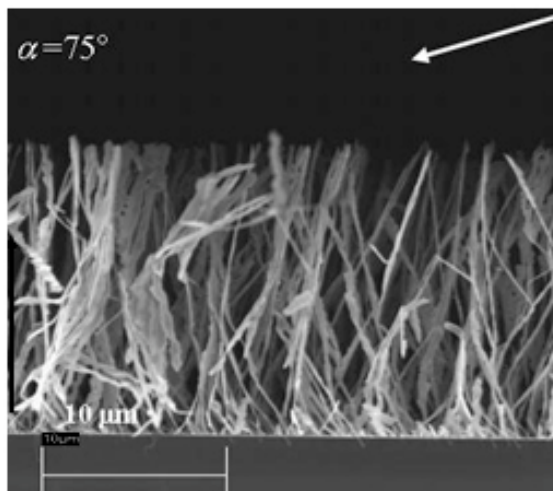


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Featured Story

“Cutting edge” nanomaterial could be used in hydrogen storage



A view of new nanoblades from the side.
Photo Credit: Rensselaer/Tom Parker

Researchers at Rensselaer Polytechnic Institute have created a razor-like material that is truly on the “cutting edge” of nanotechnology. Called nanoblades, these first-of-their-kind magnesium nanomaterials challenge conventional wisdom about nanostructure growth, and could have applications in energy storage and fuel cell technology.

The sharp nanometer-scale surface is vastly different from any other nanomaterial that has been created before using oblique angle deposition, according to lead researcher Gwo-Ching Wang, professor and head of physics, applied physics, and astronomy at Rensselaer. The team’s nearly two-dimensional structure changes the traditional understanding of oblique angle deposition, which was previously thought to always create cylindrical structures like nanorods or nanosprings.

Unlike three-dimensional springs and rods, nanoblades are extremely thin, with very large surface areas. They also are surprisingly spread out for a uniform nanomaterial, with one to two micron meters in between each blade, according to Wang. The materials could be extremely useful for energy storage, particu-

larly hydrogen storage, Wang said. In order to store hydrogen, a large surface area is needed to provide room for the material to expand as more hydrogen atoms are stored. [Read more.](#)

Honors and Awards

Faculty

- **Wilfredo Colón** (Associate Professor, Chemistry and Chemical Biology) has been elected a fellow of the American Association for the Advancement of Science (AAAS). He is one of 471 newly elected fellows recognized for their distinguished efforts to advance science or its applications. Colón is cited for “distinguished contribution to the understanding of protein folding and misfolding, and for his encouragement of under-represented minority students into careers in science.”
- **Toh-Ming Lu** (R.P. Baker Distinguished Professor, Physics) has been elected a fellow of the American Association for the Advancement of Science (AAAS). He is one of 471 newly elected fellows recognized for their distinguished efforts to advance science or its applications. In particular, Lu is cited for “seminal contributions to the fundamental understanding of thin film morphological evolution.”
- **Boleslaw Szymanski** (Professor, Computer Science; Director, Center for Pervasive Computing and Networking) was appointed the Claire and Roland Schmitt Distinguished Professor of Computer Science. The appointment began on October 15, 2007.
- **Wei Zhao** (Dean, School of Science; Professor, Computer Science) received an award from the Chinese Computer Federation for “Overseas Outstanding Achievement”. The award recognizes his outstanding achievements in the field of computer science and his significant contributions to Chinese computing endeavors.

Students

- The following School of Science students received awards at the Honors Convocation on October 20th.

The Award for Excellence

- Edward F. Corlew (Computer Science)
- Michael C. Cantore (Physics)
- Melissa A. Hall (Mathematics)
- Michael S. Wheelock (Mathematics)

4.0 Award

- Jonathan G. Brandvein (Computer Science)
- Eric A. Choudhary (Chemistry)
- Andrew S. Coye (Information Technology)
- Joseph W. Doran (Computer Science)
- Jennifer L. Earle (Biology)
- Matthew E. Fyffe (Computer Science)
- Daniel J. Hathaway (Computer Science)
- Laura L. Pomerleau (Computer Science)
- Austin K. Randazzo (Physics)
- Joshua P. Sauppe (Physics & Math)

Ellis and Karin Chingos '37 Graduate Fellowship Program

- Brandon L. Belew (Mathematics)
- Daniel S. Carrero (Physics)
- Amanda M. Weyers (Chemistry)

The Weissman Family Fellowship

- Peter K. Palomaki (Chemistry)

Founders Award of Excellence

- Jeffrey A. Bush (Bioinformatics and Molecular Biology, Biochemistry and Biophysics)
- Laura J. Byrnes (Biochemistry and Biophysics)
- Jian Chen (Physics)
- Andrew S. Coye (Information Technology)
- Ashwana D. Fricker (Biochemistry and Biophysics)
- Tolga Goren, (Mathematics)
- Daniel L. Holt (Information Technology)
- Nicholas E. Karpowicz (Physics)
- Thomas W. Kulick (Computer Science)
- Patrick Marion (Computer Science)
- Michael L. McGrattan (Biology)
- Lauren A. O'Malley (Physics)
- Jason K. Reed (Information Technology)
- Jeremy E. Sachs (Computer Science)
- Brian J. Schulkin (Physics)
- Amber D. Slowik (Bioinformatics and Molecular Biology, Biochemistry and Biophysics)
- Alyssa M. Stewart (Biology)
- Max N. Tannone (Information Technology)
- Onur A. Tekdas (Computer Science)
- Anthony J. Waters (Computer Science)

Research Accomplishments

- **Jim Hendler** (Constellation Professor, Tetherless World Constellation; Professor, Computer Science) was named a new member of the Science Council for the Global Environment for Networking Innovations (GENI) by the Computing Community Consortium. The new members will join 15 current members of the council in providing scientific guidance for the GENI project -- a proposed experimental facility to allow research on a wide variety of problems in communications, networking, and distributed systems. The GENI Science Council was originally established in March 2007 by the CCC, in partnership with the National Science Foundation.
- **Douglas Swank** (Assistant Professor, Biology) received a NIH R01 grant from the National Institute of Arthritis and Musculoskeletal and Skin Diseases (NIAMS), titled "Myosin structural and kinetic mechanisms that differentiate fast and slow muscle types." The grant is \$989K over five years.

- **Bruce Watson** (Institute Professor and Acting Head, Earth and Environmental Sciences) received a five year grant renewal from the National Science Foundation for a project titled “Experimental Studies in Petrologic and Geochemical Kinetics.” The grant is for approximately \$120K each year.

Other News

- Scientists and engineers from the Center for Biotechnology and Interdisciplinary Studies (CBIS) and the Nanotechnology Center gathered with Rensselaer leadership to celebrate the newest research collaboration on campus — nanobiotechnology. The two teams of researchers formally began a collaboration between the two key campus research centers by opening up a new research laboratory on the third floor of CBIS devoted to the emerging area of scientific research. The opening of the new NanoBio Cluster, as the lab will be called, was completed with a ribbon cutting by **President Shirley Ann Jackson**; **Richard Siegel**, director of the Nanotechnology Center and the Robert W. Hunt Professor of Materials Engineering; and **Robert Linhardt**, acting director of the CBIS and the Ann and John H. Broadbent Jr. '59 Senior Constellation Professor of Biocatalysis and Metabolic Engineering.
- **Margaret Cheney** (Professor, Mathematical Sciences) and Helen Bayly took home several medals during the Masters National Diving Championship held September 15-18 at the Aquatic Center in Eisenhower Park in Long Island, N.Y. Cheney recently set a new American record for women age 50-54 in the 3-meter event. She is the recipient of this year's Viola Cady Krahn Award for Outstanding Performance in Masters National Diving Competition, which recognizes a female diver's accomplishments over a period of time. Bayly is co-founder of the New York Civil Liberties Union, an activist, a journalist, and wife of Brian Bayly, emeritus professor of earth and environmental sciences at Rensselaer.
- The Computer Science Department held CS Day on Friday, October 26, 2007. This is the second year that the event has been held and this year's theme was *robotics*. Four distinguished speakers presented talks throughout the day, followed by a panel discussion on future research issues in robotics. The four distinguished speakers were:
 - Ronald S. Fearing, Electrical Engineering & Computer Science, UC Berkeley, *Biomimetic Millirobots*
 - Oussama Khatib, Computer Science, Stanford University, *Human-Centered Robotics*
 - Vijay Kumar, Mechanical Engineering & Applied Mechanics, University of Pennsylvania, *Scalable Approaches to Deploying Large Networks of Robots*
 - Daniela Rus, Electrical Engineering & Computer Science, MIT, *Programmable Matter with Self-reconfiguring Robots*

The CS Day event was organized by **Volkan Isler** (Assistant Professor, Computer Science) and **Jeff Trinkle** (Professor and Head, Computer Science).

Upcoming Events

- Vollmer Fries Lecture: Jeff Hawkins (inventor of the PalmPilot and author of *On Intelligence*), “Hierarchical Temporal Memory: How a New Theory of Neocortex May Lead to Truly Intelligent Machines,” November 14, 2007, 11:00 AM, Center for Biotechnology and Interdisciplinary Studies Auditorium (all are encouraged to attend).
- Trustee's Celebration of Faculty Achievement, December 6, 2007, 4:00 PM (all faculty are encouraged to attend).