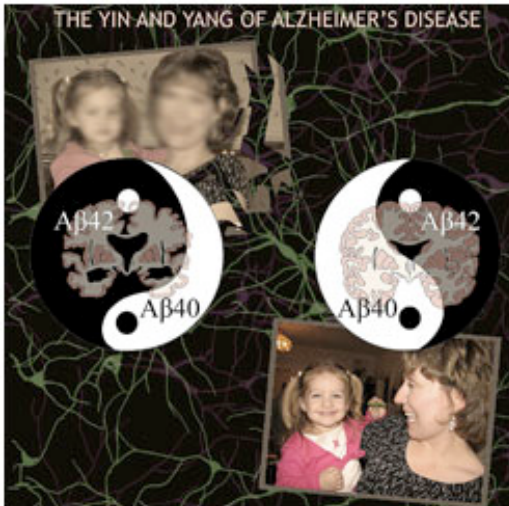


## Volume 1, Number 5

### Featured Story

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#### The Yin and Yang of Alzheimer's Disease



Researchers believe an imbalance of peptides leads to Alzheimer's progression.  
Photo Credit: Rensselaer Polytechnic Institute/Caitlin Piette

Chunyu Wang, assistant professor of biology, is challenging current thinking on the causes and prevention of Alzheimer's disease, offering a new hypothesis that could be the key to preventing this form of dementia. He has found that a specific imbalance between two peptides may be the cause of the fatal neurological disease that affects more than five million people in the United States.

"We have found that two peptides, A $\beta$ 42 and A $\beta$ 40, must be in balance for normal function," said Wang. "They are like the Yin and Yang in Taiji, an ancient Chinese philosophy. When the peptides are produced in the correct proportions, the brain is healthy; but when that delicate balance is changed, pathological changes will occur in the brain and the person's memories become hazy, leading to eventual dementia."

Wang expects that this imbalance could be the main factor in the progression of Alzheimer's disease. If correct, the addition of A $\beta$ 40 may stop the disease's development. Wang notes that further research is needed, but his preliminary results challenge the current mode of thinking about how these peptides contribute to the progression of the disease.

The research will be published in the June edition of the Journal of Molecular Biology. [Read more.](#)

### Honors and Awards

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#### Faculty

- **Gary Bedrosian** (Clinical Associate Professor, Physics) won the 2007 Rensselaer Alumni Association Teaching Award.
- **Chang Ryu** (Associate Professor, Chemistry) is one of six scientists chosen for the 2007 International Union of Pure and Applied Chemistry Young Observer Program, which provides participants with the opportunity to experience the global efforts that impact the scientific community and further their careers and international reputations with networking opportunities.
- **John Schroeder** (Professor, Physics) won the 2007 Jerome Fischbach Travel Grant.

#### Staff

- **David Kotfila** (Cisco Academy Director, Computer Science) was recognized by Cisco with the awarding of a Rigor Award. Cisco presents this award to instructors who encourage their students to take advantage of their networking academy program experiences in pursuit of post-secondary degrees including articulation agreements and other educational pathways between secondary and post-secondary schools. With a team of undergraduates, David will be publishing four books this fall that will be the global standard for Cisco advanced networking courses.

## Students

- **Nilanjan Chakraborty** (Graduate Student, Computer Science) and **Steve Berard** (Graduate Student, Computer Science) won the best student paper award at the *Robotics: Science and Systems Conference*, held in Atlanta. Mr. Chakraborty and Mr. Berard are Ph.D. students of **Srinivas Akela** (Assistant Professor, Computer Science) and **Jeff Trinkle** (Professor and Head, Computer Science), respectively. A total of 30 student papers from Stanford, MIT, Columbia, Penn, Freiburg, McGill, and other top schools competed for the award.
- **Greg Derevianko** (Undergraduate Student, Applied Physics) was selected for the 2007 ESPN Magazine National Academic All-American Men's At-Large First Team in diving. He was also Liberty League Diver of the Year, a National All-America, and finished third in the country in the 1-meter event. This is his second straight All-America recognition.
- **Felicia Tsai** (Undergraduate Student, Chemistry) was selected to the 2007 ESPN Magazine Academic All-District 1 College Division Women's Track & Field/Cross Country First Team. She also won Field Performer of the Year honors in the Liberty League year-end track and field awards. She was among the top three competitors in the nation in the hammer throw and finished fifth in the event at Nationals to earn her second outdoor All-America recognition.

## Research Accomplishments

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- **Fern Finger** (Assistant Professor, Biology) was selected to present the abstract "UNC-85 is an Asf1-related histone chaperone functioning in *C. elegans* post-embryonic neuroblast replication," co-authored with **Iwen Fu Grigsby** (Graduate Student, Biology), as a platform presentation in the session on *Neuronal Development*, at the *16th International C. elegans Conference*, in Los Angeles.
- **I. Volkan Isler** (Assistant Professor, Computer Science) was an invited speaker at a workshop on *Robotic Sensor Networks: Principles and Practice* held in conjunction with the *Robotics: Science and Systems Conference*. The title of his talk was "Sensor Selection and Placement for Robotic Sensor Networks."
- **Ryan Lafortune** (Graduate Student, Computer Science) advised by **Christopher Carothers** (Associate Professor, Computer Science) presented a paper at the *Federated Computing Research Conference* in San Diego. The work presented was done in collaboration with GE's Advanced Computing Group and was titled "An Abstract Internet Topology Model for Simulating Peer-to-Peer Content Distribution."
- **Boleslaw Szymanski** (Professor, Computer Science; Director, Center for Pervasive Computing and Networking) delivered a keynote address at the *AURORA International High Performance Workshop* in Vienna, Austria on the Internet operating systems developed at Rensselaer's Center for Pervasive Computing and Networking.
- **Boleslaw Szymanski** (Professor, Computer Science; Director, Center for Pervasive Computing and Networking) presented an invited lecture at Imperial College, London, U.K. on the sensor network protocols developed at Rensselaer's Center for Pervasive Computing and Networking.
- **Xi-Cheng Zhang** (Professor, Physics; Director, Center for Terahertz Research) has received approximately \$385K in funding in the past three months from the Army Research Office, Lockheed Martin, and the Air Force Office of Scientific Research.
- **Xi-Cheng Zhang** (Professor, Physics; Director, Center for Terahertz Research) received two patents: (1) US Patent 7,230,245: *Field induced THz wave emission microscope*, awarded June 12, 2007, and (2) U.S. Patent 7,239,775: *High repetition rate, linear, true time of optical delay line*, awarded July 3, 2007.
- **Xi-Cheng Zhang** (Professor, Physics; Director, Center for Terahertz Research) delivered an invited talk on "Physics, technology, and applications of THz wave photonics in laser-induced-air-plasma," co-authored with **J.M. Dai** (Research Assistant Professor, Center for Terahertz Research), **X. Xie** (Graduate Student, Physics), and **N. Karpowicz** (Graduate Student, Physics), at the *SURA THz Application Symposium*, in Washington DC.

## Other News

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- The School of Science recently published its first printed newsletter, Science @ Rensselaer. It is expected that this newsletter will be published twice a year, in the spring and the fall. It will be distributed to alumni and friends of the school, science schools at other universities, and selected program managers at funding agencies. Copies of the newsletter may be obtained from the Office of the Dean.
- A new research-based ranking published by the Association for Computing Machinery shows a marked increase in ranking for the Computer Science Department. The department rose from a ranking of 69 to 45 among the computer science departments in the US.
- Sanmay Das has accepted his offer to become Assistant Professor in the Computer Science Department. Sanmay comes to Rensselaer from a Postdoctoral position at the University of California, San Diego. His research interests are machine learning, multi-agent systems, computational finance and economics, market microstructure, information retrieval, and bioinformatics.
- Susan Gilbert has accepted her offer to become Professor and Head of the Biology Department. Susan comes to Rensselaer from the Department of Biological Sciences at the University of Pittsburgh. Her research interests focus on structure and mechanism of microtubule-dependent ATPases involved in cell motility, including kinesin, cytoplasmic dynein, Ncd, Eg5, and Kar3, and on transient state kinetic analysis of enzyme reaction mechanisms.
- Mark Platt has accepted his offer to become Assistant Professor in the Chemistry and Chemical Biology Department. Mark was Interim Core Director for Proteomics in the Center for Biotechnology and Interdisciplinary Studies for the past year and came to Rensselaer from the Victorian Centre for Plant Functional Genomics in Melbourne, Australia. His research interests focus on the use of mass spectrometry to identify proteins within biological systems, specifically in the areas of proteomics, protein phosphorylation, and differential analysis.
- Preliminary data for fiscal year 2007, which ended June 30, 2007, indicates that research expenditures in the School of Science were up 11% from the previous year, new awards were up 2% from the previous year, and the number of proposals submitted was the same as the previous year.

## Upcoming Events

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- Undergraduate Student Orientation, July 11-12, 13-14, 16-17, 18-19, 20-21, August 20-21
- Transfer Student Orientation, July 10, August 24
- Navigating Rensselaer and Beyond, August 21-26
- Fall Classes Begin, August 27

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This newsletter is prepared monthly and distributed to faculty, staff and students in the School of Science to keep everyone informed of accomplishments and events within the school. Corrections and items for the next newsletter should be sent to [spoon@rpi.edu](mailto:spoon@rpi.edu).

