NEWS

Daily Debriefing

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Yeong-Ah Soh, professor of physics and astronomy, is working on research that could greatly contribute to the area of quantum information processing. Soh's research team published their results in late July on Science magazine's website, explaining how to find and change the direction of the pathways of electrons — a way to document information in a quantum computer. Quantum computing, a theory that has been around for over 30 years, uses atomic properties as "quantum bits" or "qubits" in the memory of a computer system. The research group, both in the United States and abroad, used strong imaging technology to examine Japanese ceramic pieces made up of octahedra. This "nickel-centered oxygen," called spin liquid, has electrons which move in arbitrary pathways regardless of temperature. Through this research, the team learned that the electron spins reached a "quantum order" within the spin liquid. They also looked into the possibility of obliterating quantum order by changing the temperature.

The Environmental Protection Agency recently gave teams from Dartmouth and the University of Massachusetts at Amherst research grants to fund projects focused on environmental awareness and sustainability. Granted almost $300,000 apiece, the teams plan to study sustainability from various perspectives — from ecology to the economy to social implications. The Dartmouth team plans to study changing levels of mercury pollution and their relationship to policies and government actions. The groups will also work to connect humans and their environments in an attempt to improve environmental protection and community health. The funds come from the National Center for Environmental Research at the EPA.

M. Eric Johnson, director of the Center for Digital Strategies at the Tuck School of Business recently testified at a government reform committee meeting about the dangers of P2P file sharing. This type of file sharing can be done without uploading and has recently been slammed by General Wesley Clark as a potential risk to national security. Clark serves on the board of Tiversa, an organization that searches P2P networks for sensitive information, and noted that over 200 classified government papers were found on different networks in a short period of time. Johnson completed an experiment to reveal the dangers of the P2P networks. He put an e-mail containing a Visa card number and an AT&T phone card's information in a P2P network connected to LimeWire. The credit card number was obtained by both Paypal and Nochex, while the calling card also was used from sources both outside and inside the United States.