

## Calendar/Meetings

### October 2005

17-19, [BIRN All Hands Meeting 2005](#), La Jolla, California

18-21, [EDUCAUSE 2005 Annual Conference](#), Orlando, Florida

19-21, [e-2005 eChallenges Conference](#), Ljubljana, Slovenia

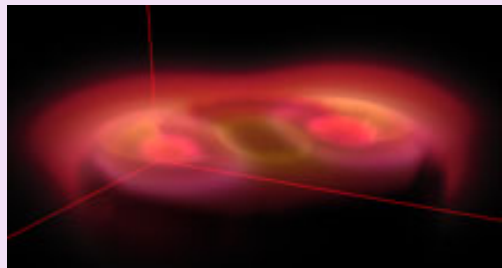
19-22, [Richard Tapia Celebration of Diversity in Computing Conference 2005](#), Albuquerque, New Mexico

20-23, [PRAGMA 9: Pacific Rim Applications and Grid Middleware Assembly Ninth Workshop](#), Hyderabad, India

24-27, [The Geosciences Network \(GEON\) Cyberinfrastructure Workshop at the University of Hyderabad](#), Hyderabad, India

[Full Calendar](#)

## Image of the Week



**Quantum dot electronic states visualization from the NEMO3D simulator. (Click on image for larger version.)**

*Image courtesy of Q. Wei, D. Ebert and G. Klimeck, Purdue University*

At the nanometer scale, matter exhibits strange, new behaviors. Nanotechnology researchers harness

## Feature Story

### e-VLBI Measures Earth and Sky



Diagram of e-VLBI demonstration network for iGrid 2005.  
*Image Courtesy MIT Haystack Observatory*

The technique of Very Long Baseline Interferometry has been used since the late 1960s by astronomers to make detailed images of distant radio-emitting objects in the universe, and by geoscientists to precisely measure the dynamics of the Earth. This well-established technique uses an array of independent antennas, scattered over the surface of the earth and synchronized with atomic clocks, to make simultaneous observations. With the use of global multi-gigabit optical networks, VLBI may be poised for a major upgrade.

"VLBI was originally developed by radio astronomers to make high-resolution measurements of quasars," said Alan Whitney from the Massachusetts Institute of Technology's Haystack Observatory. "In some VLBI observations, scientists can make high-resolution images of a distant radio source equivalent to discerning the dimples on a golf ball 3,000 miles away. The distances between the antennas can also be measured to an accuracy of a few millimeters anywhere on the surface of the Earth. This allows geophysicists and geologists to make direct measurements of the motion of the tectonic plates, as well as extremely accurate measurements of the motion of the Earth in space."

Traditionally, VLBI data from up to 20 antennas are simultaneously recorded to magnetic tapes or disks and physically shipped to a central location, where a specialized

## LHC Physics, Networking Meet at Fermilab



Last Wednesday, October 12, over 70 physicists and network professionals met near Chicago to discuss data transfer requirements for U.S. participants in experiments at the Large Hadron Collider, the world's largest particle accelerator. The North American LHC Tier 2 Networking Meeting, sponsored by Internet2 and the Department of Energy's Energy Sciences Network, was held at Fermi National Accelerator Laboratory.

Over 400 physicists at U.S. universities and laboratories plan to study the fundamental properties of particles and forces using data from the CMS and ATLAS experiments at the LHC, currently being built at CERN in Geneva, Switzerland. When the LHC begins operating in 2007, data will be collected at the CMS and ATLAS detectors and sent over high-speed networks to large Tier 1 computer facilities worldwide, including Fermilab and Brookhaven National Laboratory in the United States and TRIUMF in Canada. The Tier 1 facilities will then send data to the Tier 2 computing facilities, located at universities across North America.

"The first goal of this meeting was to get the networking folks at the universities together with the physicists, and get communications going about the LHC project and Tier 2 centers," said Rick Summerhill from Internet2. "The second goal was to see where we were on supporting the connectivity down to the Tier 2 sites."

[Read the full article](#)

those behaviors to create new devices and materials, and use the [nanoHUB](#) to access simulation tools, educational materials and computing resources necessary to study matter at the nanometer scale. New middleware allows the nanoHUB to act as a conduit to grid computing resources from several infrastructures.

### [Link of the Week](#)


#### **The Global Grid Forum**

The Global Grid Forum is the community of users, developers, and vendors leading the global standardization effort for grid computing. The GGF community, which consists of thousands of individuals in industry and research, representing over 400 organizations in more than 50 countries, works for the pervasive adoption of grid computing worldwide.

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 Office of Science/  
U.S. DOE

processor called a correlator searches for common signals in the data. High-speed networks directly linking the antennas with the correlator would allow scientists to view the correlated signals very soon after they are recorded and adjust their observations accordingly. A networked e-VLBI system would also have the potential to move data at much higher rates, dramatically increasing the technique's sensitivity.

[Read the full article](#)

### **Announcement**

#### **Call for Topics for the e-Science Institute Thematic Program**

The [e-Science](#)

[Institute](#), situated in Edinburgh, Scotland, is the United Kingdom's Centre for e-Research Meetings. The Institute has recently



introduced a [thematic mode](#), which concentrates on in-depth and sustained investigation of a topic by a series of linked talks, workshops and conferences over a period of six months to a year.

Proposals are due by November 14, 2005 for topics for the next two themes, which will run throughout 2006. The proposals, which will be reviewed by the eSI Science Advisory Board in early December, can be made either by the research community, in which case eSI will try to find an appropriate leader, or by potential theme leaders.



The e-Science Institute, funded by the e-Science Core Programme, has run over 350 meetings attended by 10,500 delegates, and hosted 46 visitors who have

stayed for varying periods from one day to a year, since August 2001. The Institute runs a responsive mode program as well as a thematic mode. Theme leaders are long-term funded visitors to the Institute. Currently, eSI

### **Grids in the News**

#### **A single body of health data**

Australian IT, October 18, 2005  
by Dorothy Kennedy

A health informatics project just finished in Melbourne may form the nucleus of a national clinical research grid linking hospital databases across Australia.

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#### **John Q. Public: Modeling information processing and political opinion on the TeraGrid**

SDSC Press Release, October 14, 2005

By Trish Barker, NCSA

How do people assess political candidates? How do campaign events and new information change their views?

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#### **TeraGrid Enables More Efficient Oil Drilling**

GRIDtoday, October 14, 2005

Oil companies could soon harness the power of distant supercomputers to tackle problems such as where to place equipment and how to clean up oil spills.

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#### **UCHRI Launches Cyberinfrastructure for Humanities, Arts and Social Sciences**

UCHRI Press Release, October 12, 2005

The University of California Research Institute (UCHRI) today announced the launch of the HASS Grid, a major cyberinfrastructure initiative to strengthen research support for the humanities, arts and social sciences.

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has two active themes: Information Services for Smart Decision Making, led by Jennifer Schopf from Argonne National Laboratory; and Exploiting Diverse Sources of Scientific Data. The first events for the latter theme will occur in November 2005 and are now open for registration.

To propose a theme or if you have any questions, please contact Anna Kenway by email or phone (+ 44 (0)131 650 9818).