Open Science Grid News

Meetings and Events

GCC2006
Changsha, China
October 21-23, 2006

SC06
Tampa, Florida
November 11-17, 2006

GCE'06
Tampa, Florida
November 12-13, 2006

WLCG Collaboration Workshop
CERN, Switzerland
January 22-26, 2007

View Full Calendar

New Web Site for OSG

The OSG Web site has gotten a facelift, after much collaboration between our Executive Director, our OSG Communicator, members of the OSG Documentation Activity and others. Thanks to all who worked very hard to bring the new site into being! We'd love to hear from you! Please send comments or suggestions to osg-webmaster@opensciencegrid.org.

Spotlight on an OSG Contributor

From the Executive Director

We are funded! DOE has announced the SciDAC-2 awards and NSF has sent us an official contract number. This gives us five years to bring to fruition the next stage of our vision: the democracy of science for everyone around the globe through collaboration and shared computing resources. Many thanks to all of you who have contributed so much and supported our program so well.

The fifteen recipients of the OSG award are Berkeley Lab, Boston University, Brookhaven National Lab, Caltech, Columbia University, Cornell University, Fermilab, Indiana University, RENCI, SLAC, UCSD, University of Chicago/ANL, University of Florida, University of Iowa, and University of Wisconsin-Madison.

The funded program of work includes operations and security for the OSG infrastructure; continuing support for and evolution of the Virtual Data Toolkit; assistance to new communities for use of and benefit from the OSG; education, training and technical writing efforts; outreach activities including partnerships with campus and regional grids; and a charge to evaluate and integrate new software and services into OSG for the OSG stakeholders. This is an exciting and challenging agenda.

Your continued enthusiasm and collaboration is crucial to the success of the OSG. We need and appreciate all the Consortium and Council members: contributors to the OSG; the administrators and owners of the resources made accessible through the OSG; the developers and supporters of the application middleware needed on the OSG; and the researchers and investigators using the OSG for science.

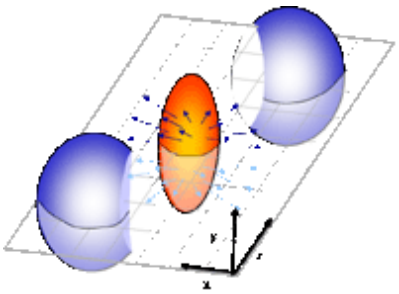
Do continue to meet with each other and to correspond on the active, friendly and helpful mailing lists. Feel free to email me or the other members of the Executive Board about anything and everything. Most of all, enjoy being part of this vigorous and ambitious collaboration!

With best regards,

Ruth Pordes

Probing the Perfect Liquid with the STAR Grid

When the universe was just microseconds old, it consisted of a soup of free quarks and gluons. Experiments at the Relativistic Heavy Ion Collider (RHIC) at Brookhaven National Laboratory seek to reproduce matter under these conditions and study it in the laboratory by creating "little bangs" from high-energy collisions of heavy nuclei. Recent findings from these experiments indicate that the matter created in these conditions behaves like an extraordinarily "perfect" liquid that flows with little resistance, much like superfluid helium.



Schematic of the collision zone between two incoming nuclei. (Click to view larger image)

To determine the properties of this perfect liquid, physicists around the world must sift through the ashes from millions of these little bangs. One measure sensitive to properties at such small scales is the "elliptic flow" of particles in the detector. When two heavy nuclei collide in the STAR detector, the initial shape of the collision zone is usually elliptical. Pressure in the liquid seeks to make the matter

Terrence Martin is the US CMS Tier-2 site administrator at the University of California, San Diego. He makes his computing and storage resources available for all OSG virtual organizations and activities. Terrence focuses on making his site the most useful and effective resource on the grid, and he writes up what he has learned to help other OSG collaborators. He doesn't much like meetings so his thoughts are usually in the written word, which makes them even more valuable for review and later use. Let's keep Terrence happy by keeping his site busy!

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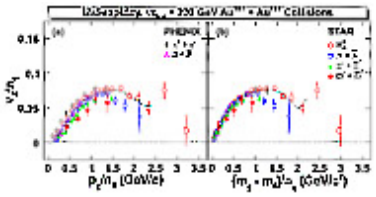
round, and so makes the liquid flow faster in the shorter than in the longer direction. This elliptic flow is preserved in the velocity of particles as they reach the detector. At the highest multiplicities at RHIC this flow is large, and approaches the limit of the maximal amount of flow predicted in pure hydrodynamic calculations that assume the matter flows with zero viscosity.



Preliminary result shown at Hard Probes 2006 by Y. Lu (IOPP) based on analysis of events transferred to China over the Grid. (Click to view larger image.) *Image courtesy Yan Lu.*

An incisive test of this is the pattern of elliptic flow for a range of identified final-state particles. At low transverse momentum the pattern of elliptic flow is well reproduced by such calculations. While this discovery is extremely exciting, it remains a challenge to determine the viscosity of the liquid, which needs to be an order of magnitude smaller than that of superfluid helium, with high precision. The viscosity is in principle calculable from first principle Lattice Quantum Chromodynamics, and so a precise measurement serves as a crucial test of our understanding of that theory.

This challenge requires the analysis of large event samples. The STAR collaboration currently relies on the OSG software stack to federate its facilities into a uniform computational pool used to run heavy simulations. The SRM/DataMover, now running on the OSG infrastructure, makes STAR's data available to remote sites. This tool, provided by STAR's collaborators from the SDM center at LBL, has been a tremendous enabler in these analyses. SRM/DataMover was used to transfer a large data set (20 TB, 110 million events) in near-real time from BNL to PDSF at NERSC at a peak rate of 35 MB/sec. From NERSC the data was transferred to collaborating sites in China.

Efficient data movement has allowed STAR to spread user data analysis over a computing pool of 3000 kSI2k, which has led to timely analysis of the patterns of elliptic flow in the data. A preliminary example is shown above. In certain regions of transverse momentum, STAR has found that elliptic flow scales with the number of quarks in the final state hadron, thus bringing to light the partonic dynamics in the early stages of the collision.

Further results on elliptic flow and other related phenomena will be presented at the largest international conference in the field, Quark Matter 2006, in Shanghai this November.

- Jerome Lauret & James Dunlop, Brookhaven National Laboratory