ADVANCING RESEARCH CREATING SOLUTIONS

19 March 2007 **The Great Plains Network**

By Sandhya Bathini, Newsletter Editor, and Dena Bunnel, Member Coordinator

About two months ago, we began planning for the GPN Annual Meeting, ***GPN2007: Markers, Milestones and New Directions*** to be held on May 30, 31 and June 1, 2007, in Kansas City, MO. After exchanging email with **Jerry Niebaum**, I decided to trace a chronology of events in GPN history using the thorough documentation that **Rick Summerhill** archived at the GPN web site. That *history* is located at the GPN WIKI with links to critical documents. It was clear to me from reading the documentation that, as Rick always said, GPN is a collective *vision*.

I was interested to learn that the very first organizing meeting for GPN was held in Kansas City in June, 1996. So, this year's annual meeting will mark the 11th anniversary of that first meeting. The **NSF** award to fund the GPN backbone was made in September, 1997, making this the ten-year anniversary of that milestone event! If my history is correct, GPN was the first regional network to connect to **Internet2**. This was possible because of the *foresight* of GPN founders and stakeholders--Jerry, Rick, **Bonnie Neas**, **Bob Zimmerman**, **Ted Kuwana**, **Ken Bishop**, **Claude Garelik**, **Bill Mitchell**, **Stu Doescher**, **Dorette Kerian, Dale Finkelson** and many, many others (please look here for a more complete list of those involved in GPN formation).

Since those first days, GPN has evolved, and there have been many changes. But I would say that, if this year is any indication, the best is yet to come. Let me review some milestone events since our last annual meeting in May, 2005.

In December, the state of **Arkansas** launched ***AREON*** ("are on"), the Arkansas Research and Education Optical Network. In February, **South Dakota** also received funding to build an optical network for research and education. Due to the **University of Nebraska's** designation as a Tier 2 site in the **CMS** collider project and the resulting need for more network bandwith, the GPN states of **Kansas**, **Missouri** *and* Nebraska will all benefit from a new 10-gigabit per second connection to Internet2's ***NewNet***, with others to follow!

There is more encouraging news. South Dakota is in the running (finalist) for a large NSF project known as the **Deep Underground Science and Engineering Laboratory** (**DUSEL**). South Dakota also received a **$400 million donation** to advance their medical research agenda.

Due to the contributions of **Amy Apon** of the **University of Arkansas**, **David Swanson** and **Brian Bockelman** of UNL, GPN has become a VO (virtual organization) participant within the **Open Science Grid** community, permitting GPN researchers to access compute and store resources at other institutions. The GPN **Bioinformatics group**, led by **Dan Berleant** of the **University of Arkansas at Little Rock** and with the contributions of **Gordon Springer** of the **University of Missouri at Columbia** and UALR, is poised to make a suite of compute resources available to bioinformatics researchers at member institutions. GPN

is also on the verge of adding our first affiliate members!

As if all this was not enough, Internet2 and **NLR** have announced that they have found a path toward a merger that will, ultimately, unite the two premier R&E networks in the United States.

I hope you will join us in KCMO to celebrate the milestones and to help envision our future together.

Greg Monaco, Ph.D.

Executive Director

1. Latest News

The Great Plains Network Annual Meeting – May 30, 31 & June 1, 2007; Kansas City, MO; **GPN 2007: Markers, Milestones, and New Directions**
GPN Turns Ten! This will be a celebration bash to mark the past and set the stage for the next 10 years! Major topic areas will include: Research and New Horizons, Security and Policy, Networking, and Collaboration and Partnerships. Keynote speakers include **Ruth Pordes**, Executive Director of the **Open Science Grid**, **Ken Klingenstein**, **Internet2** (tentative), **Mary Eileen McLaughlin**, Director of Technical Operations, **Merit**.

- Learn More…
- Registration…
- Call for Posters, Papers, Panels…

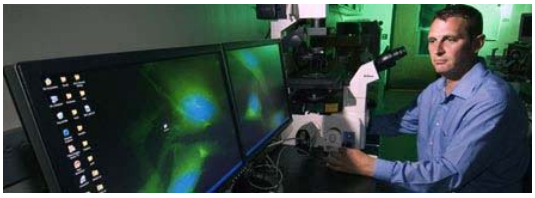
GPNgrid: Great Plains Network Grid Workshop - A Workshop for Great Plains Network Consortium Members was hosted by the Department of Chemical & Petroleum Engineering, University of Kansas on February 2 & 3, 2007. Participants learned to access GPNgrid Nodes and to configure new nodes.

2. Campus Notes

Web 2.0 in Just Under 5 Minutes – Kansas State University, Kansas- Michael Wesch, assistant professor of anthropology, created a video explaining Web 2.0, the "second wave" of Web-based services allowing people to network, share and collaborate online. Wesch, who also serves as the guest editor of a special issue of Visual Anthropology Review, "Beyond e-Text," was writing about what can be done with new technology, such as blogs, wikis, video editing, Web feeds and social networking sites. He created "Web 2.0...The Machine is Us/ing Us" to describe his path through the Internet. His creation was the most popular video on the Internet surpassing Beyonce's latest pop music video.

Water Research Institute Receives $1.3M for Support of State's Water Plan - Oklahoma State University - The Oklahoma Water Resources Board has awarded a contract valued at $1.3M to the Oklahoma Water Resources Research Institute (known as the Water Research Institute, WRI) at OSU in support of the revision of the Oklahoma Comprehensive Water Plan(OCWP).

KU Professor, Student Find New Variable in Common Drug Therapy Problem – University of Kansas, Lawrence, Kansas–



A University of Kansas researcher and a pharmacy student from Newton have uncovered a potentially important variable to aid in understanding a common problem in drug therapy: why a standard dosage may not work for all patients.

Dr. Vojislav Kalanovic's VDK1000 Invention Automates Jewelry Processing - South Dakota School of Mines and Technology – South Dakota - As a professor and past chair of the Department of Mechanical Engineering, Dr. Vojislav Kalanovic teaches students, participates in research, and helps to

organize departmental priorities. Eight years ago, Kalanovic invented the first-ever robotic jewelry application. Since that time, he has come to be known as the "father of robotic applications" within the jewelry industry and has received numerous patents, awards, and accolades for his work. He has also created a fourth generation of jewelry processing machines.

3. Recent Awards

NSF: Here are the new NSF awards that were registered between January and February 2007.

Arkansas

Start Date: 03/01/2007; **Zhang, Sulin**; CAREER: Multiscale Modeling of Nanoparticle-Cell Interactions; University of Arkansas; $401,000; (0644599).

Start Date: 02/15/2007; **Buyurgan, Nebil**; Integrated Auto-ID Technology for Multidisciplinary Undergraduate Studies (I-ATMUS); University of Arkansas; $149,709; (0633334).

Start Date: 03/01/2007; **Gordon, Matthew**; REU Site - Summer Internships in Nanomaterials and Nanomechanics; University of Arkansas; $247,885; (0648874).

Start Date: 03/01/2007; **Lehmann, Michael**; Function of Cell Identity Factors in Tissue-Specific Programmed Cell Death; University of Arkansas; $330,000; (0641347).

Start Date: 04/01/2007; **Adams, Paul**; Research Starter Grant; University of Arkansas; $50,000; (0637041).

Kansas

Start Date: 06/01/2007; **Walton, Krista**; Functional Microporous Metal-Organic Materials for Adsorption Applications: Experimental Investigations and Molecular Modeling; Kansas State University; $260,328; (0700489).

Start Date: 03/01/2007; **Heppert, Joseph**; REU Site: A Summer Experience for Undergraduates Integrating Research, Education, and Career Development in an Interdisciplinary Environment; University of Kansas Center for Research; $79,764; (0649246).

Start Date: 03/15/2007; **Denell, Robin**; Evolution of Genetic Mechanisms Controlling Developmental Fate; Kansas State University; $140,000; (0646889).

Start Date: 04/01/2007; **Nguyen, Trung**; Water Management in PEM Fuel Cells by Material Engineering; University of Kansas Center for Research; $270,244; (0651758).

Start Date: 05/01/2007; **Chen, Xue-Wen**; CAREER: Machine Learning Approaches for Genome-wide Biological Network Inference; University of Kansas Center for Research; $345,622; (0644366).

Start Date: 02/01/2007; **Rogers, Christopher**; Development of the Ninnescah Field Station and Experimental Tract; Wichita State University; $240,000; (0626817).

Start Date: 02/01/2007; **Whitman, Lawrence**; Lean and Green Production Systems Class Project; Wichita State University; $139,166; (0633014).

Start Date: 05/01/2007; **Twomey, Janet**; Wichita State University (WSU) Industry University Cooperative Research Center for the Reduction of Waste in Aerospace Logistic Systems; Wichita State University; $10,000; (0654337).

Nebraska

Start Date: 05/15/2007; **Kim, Yong-Rak**; CAREER: Research and Education on Advanced Multiscale Modeling-Analysis of Roadway Materials, Mixtures, and Infrastructure Systems; University of Nebraska- Lincoln; $402,044; (0644618).

Start Date: 03/01/2007; **Radcliffe, Andrew**; Rowlee Conference: Random

Combinatorial Structures; University of Nebraska-Lincoln; $9,022; (0700574).

Start Date: 03/01/2007; **Holmes, Andrea**; Incorporating Circular Dichroism in the Undergraduate Chemistry Curriculum; Doane College; $129,469; (0633462).

Start Date: 02/15/2007; **Xu, Lisong**; CAREER: Stochastic TCP Friendliness: Exploring the Design Space of TCP-Friendly Traffic Control in the Best-Effort Internet; University of Nebraska-Lincoln; $400,000; (0644080).

Start Date: 02/01/2007; **Blum, Paul**; Integration of Microbial Communities into a Microbiology Laboratory Class Curriculum; University of Nebraska-Lincoln; $135,000; (0633482).

Missouri

Start Date: 02/15/2007; **Clark, Deborah**; Long-term Annual Performance of Tropical Rainforest Trees: a Cross-scale Analysis; University of Missouri-Saint Louis; $85,509; (0640206).

Start Date: 02/15/2007; **Sandvol, Eric**; Collaborative Research: Deep Structure of the Northeast Tibetan Collision Zone-INDEPTH IV; University of Missouri-Columbia; $51,776; (0409589).

Start Date: 07/01/2007; **Yao, Gang**; CAREER: light propagation in striated muscle; University of Missouri-Columbia; $63,085; (0643190).

Start Date: 07/01/2007; **Angenent, Lars**; CAREER: Microbial fuel cell technology for large-scale wastewater treatment; Washington University; $400,000; (0645021).

Start Date: 03/01/2007; **Nothwehr, Steven**; Molecular Mechanisms Relating to Protein Sorting within the Yeast TGN and Early Endosomal System; University of Missouri-Columbia; $150,000; (0641216).

Start Date: 03/01/2007; **Holten, Dewey**; Primary Electron Transfer Processes in Photosynthetic Bacterial Reaction Centers; Washington University; $190,666; (0614529).

Start Date: 03/01/2007; **Flinn, Mark**; Collaborative Research: Early Childhood Stress, Personality & Reproduction in a Matrifocal Community; University of Missouri-Columbia; $34,477; (0650442).

Start Date: 01/01/2007; **Madison, Don**; Student Support for GEC 2006; University of Missouri-Rolla; $5,000; (0637693).

Start Date: 02/01/2007; **Nair, Satish**; Integrating Modeling and Laboratory Sessions In Neuroscience; University of Missouri-Columbia; $150,000; (0632992).

Start Date: 02/01/2007; **Zoughi, Reza**; Student Support for ICONIC 2007 Conference will be held in St. Louis, MO on June 27-29, 2007; University of Missouri-Rolla; $5,000; (0710902).

Start Date: 02/01/2007; **Kim, Chang-Soo**; CAREER: Horticulture-on-a-chip: an innovative Bio-MEMS device to study interactions between roots and the root zone; University of Missouri-Rolla; $76,541; (0644679).

Start Date: 02/01/2007; **Ferdowsi, Mehdi**; CAREER: Vehicle Fleet as a Distributed Energy Storage System for the Power Grid; University of Missouri-Rolla; $400,000; (0640636).

Oklahoma

Start Date: 03/01/2007; **Straka, Jerry**; Formative Dynamics of Mammatus Clouds in Thunderstorm Cirrus; University of Oklahoma; $100,241; (0646892).

Start Date: 03/15/2007; **Lovern, Matthew**; Maternal Steroid Effects on Offspring Phenotype; Oklahoma State University; $320,000; (0641434).

Start Date: 03/01/2007; **Bunting, Charles**; Teaching High Frequency Design as a Technologic Enabler; $149,934; (0633680).

Start Date: 10/01/2006; **Keller, George**; ITR Collaborative Research: GEON: A

Research Project to Create Cyberinfrastructure for the Geosciences; University of Oklahoma; $268,509; (0724265).

Start Date: 03/15/2007; **LaDue, Daphne**; REU Site: Real-World Research Experiences at the National Weather Center; University of Oklahoma; $151,528; (0648566).

Start Date: 03/15/2007; **Fiedler, Brian**; Suction Vortices, Spiral Breakdown and Multiple Vortices in Tornadoes; University of Oklahoma; $92,094; (0646914).

Start Date: 07/01/2007; **Komanduri, Rang**a; Heterogeneous Wireless Sensing and Modeling of Chemical-Mechanical Interactions in Chemical Mechanical Planarization Process for Microelectronic Applications; Oklahoma State University; $394,995; (0700680).

Start Date: 04/01/2007; **Lavine, Barry**; REU Site: Research Experience for Undergraduates in Integrated Nanoscience; Oklahoma State University; $112,545; (0649162).

Start Date: 02/01/2007; **Crowther-Heyck, Hunter**; Scholar's Award: The Branching Tree: Organization, Process, and Hierarchy in the 20th-Century Social and Behavioral Science; University of Oklahoma; $32,155; (0621232).

Start Date: 02/01/2007; **Richter-Addo, George**; CRIF:MU Hardware and Cyberinfrastructure Update of a 400 MHz NMR; University of Oklahoma; $308,064; (0639199).

Start Date: 11/28/2006; **Scott, James**; REU Site: Democracy and World Politics Summer Research Program; Oklahoma State University; $113,169; (0715548).

Start Date: 03/01/2007; **Slaughter, LeGrande**; Self-Assembly of Electrophilic Late Metal Catalysts and Catalyzing Careers in Research; $190,000; (0645638).

North Dakota

Start Date: 03/01/2007; **Stubblefield, Phoebe**; Using a Crime Lab Model to Enhance Undergraduate Science Education; University of North Dakota; $148,813; (0633686).

Start Date: 05/01/2007; **Bigelow, Timothy**; Ultrasound Histotripsy System Development to Improve Cancer Treatment; $400,000; (0643860).

South Dakota

Start Date: 02/01/2007; **Greenlee, Davi**d; Science Evaluation and Site Recommendation Workshop; USGS EDC; $202,600; (0718181).

NIH: The new awards in our region for Bioinformatics and/or Computational Biology from NIH's CRISP database:

Oklahoma

Start Date: 09/17/2006; **Mulvihill; John J**; Oklahoma Planning Grant for Clinical//Translational Science; University of Oklahoma Health Sciences CTR; National Center For Research Resources.

4. New Funding Opportunities

MARGINS Program (NSF-Directorate for Geosciences) - The MARGINS research program has been formulated to understand the complex interplay of processes that govern continental margin evolution globally. Mechanical, chemical, biological and fluid processes act in concert to govern the initiation, evolution and eventual destruction of continental margins, as well as the accumulation of resources in these regions. Estimated Number of Awards: 10; Anticipated Funding Amount: $6,000,000 (Full Proposal Deadline: July 01, 2007).

Course, Curriculum, and Laboratory Improvement (CCLI) (NSF-Directorate for Education & Human Resources) - The CCLI program seeks to improve the quality of science, technology, engineering, and mathematics (STEM) education for all undergraduate students. The program supports efforts to

create new learning materials and teaching strategies, develop faculty expertise, implement educational innovations, assess learning and evaluate innovations, and conduct research on STEM teaching and learning. Estimated Number of Awards: 92 to 125 including 70 to 90 Phase 1 awards, 20 to 30 Phase 2 awards, and 2 to 5 Phase 3 awards; Anticipated Funding Amount: $34,000,000 for new and ongoing awards. (Full Proposal Deadline: May 08, 2007).

Exploratory Innovations in Biomedical Computational Science and Technology (NIH-Department of Health and Human Services) - The NIH is interested in promoting research and developments in computational science and technology that will support rapid progress in areas of scientific opportunity in biomedical research. Award Ceiling: $275,000 over two years. (Proposal Deadlines: May 24, 2007, September 24, 2007).

Biomedical Engineering (NSF-Chemical, Bioengineering, Environmental, and Transport Systems) - The program focuses on high impact transforming technologies and include models and tools for understanding and control of biological systems; fundamental improvements in deriving information from cells, tissues, organs, and organ systems; new approaches to the design of structures and materials for eventual medical use; new methods of understanding and controlling living systems, and new methods of reducing health care costs through new technologies. (Full Proposal Window: August 15, 2007 - September 15, 2007).

Microbial Observatories (MO) and Microbial Interactions and Processes (MIP) (NSF-Directorate for Biological Sciences) - The guiding themes of the Microbial Observatories (MO) and Microbial Interactions and Processes (MIP) program are: (1) discovery of large numbers of as yet undescribed microorganisms and microbial consortia from diverse habitats; and (2) characterization of novel biochemical, metabolic, physiological, genomic and other properties and processes of newly described or poorly understood microbes and microbial communities. Expected Number of Awards: 10; Estimated Total Program Funding: $4,500,000 (Full Proposal Deadline: October 08, 2007).

Focused Research Groups in the Mathematical Sciences (FRG) (NSF-Directorate for Mathematical & Physical Sciences) - The purpose of the FRG activity is to support work by groups of three or more researchers to respond to recognized scientific needs of pressing importance, to take advantage of current scientific opportunities, or to prepare and solidify the ground for anticipated scientific developments in the mathematical sciences. Expected Number of Awards: 15; Estimated Total Program Funding: $12,000,000 (Letter of Intent Due Date (required): August 17, 2007; Full Proposal Deadline: September 21,2007).

CISE Computing Research Infrastructure (NSF-Directorate for Computer & Information Science & Engineering) - The CRI program provides support for the acquisition, creation, and dissemination of computing infrastructure that enhances research and education capabilities, that is not normally fundable under individual research and education grants, and that is beyond the infrastructure available at the host institution(s). Expected Number of Awards: 55; Estimated Total Program Funding: $18,000,000 (Full Proposal Deadline: August 02, 2007).

Digital Humanities Fellowships (NEH) – NEH Digital Humanities Fellowships are intended to support individuals pursuing advanced research or other projects in the humanities that explore the relationship between technologies and the humanities; or produce digital products such as

electronic publications, digital archives, or databases, advanced digital representations of extant data using graphical displays such as geographic information systems (GIS) or other digital media, or digital analytical tools that further humanistic research. Expected Number of Awards: 10; Award Ceiling: $75,400; (Full Proposal Deadline: May 01, 2007

Developing Global Scientists and Engineers (International Research) (NSF-Office of the Director) - This solicitation addresses opportunities for international research and education for early career stages of scientists and engineers, i.e., as undergraduates and graduate students. Expected Number of Awards: 20; Estimated Total Program Funding: $900,000 (Full Proposal Deadline: September 15, 2007).

Developmental Systems (NSF-Division of Integrative Organismal Systems) - The Developmental Systems Cluster supports research aimed at understanding how interacting developmental processes give rise to the emergent properties of organisms. A systems level approach to understanding these processes, at the molecular, cellular, and organismal levels of organization, requires the use of molecular, genetic, biochemical, and physiological techniques as well as techniques from outside biology.(Full Proposal Target Date: July 12, 2007)

Neural Systems (NSF-Division of Integrative Organismal Systems) - The Neural Systems Cluster focuses on how complex functions emerge from the interactions of the cellular elements of the nervous system as well as the interactions of the nervous system with other physiological systems. The Cluster encourages a systems biology approach to understanding how the nervous system adapts and regulates its function and structure in response to the internal or external environment. (Full Proposal Target Date: July 12, 2007).

Physiological and Structural Systems (NSF-Division of Integrative Organismal Systems) - The Physiological and Structural Systems Cluster supports research aimed at furthering the understanding of organisms as integrated units of biological organization. The Cluster considers proposals focused on interacting physiological and structural systems, their environmental and evolutionary contexts, and how these components are constrained by their integration into the whole organism. Projects that use systems approaches to understand why particular patterns of architecture and regulatory control have emerged as general organismal properties are particularly encouraged. (Full Proposal Target Date: July 12, 2007).

Computational Toxicology Centers: Development Of Predictive Environmental And Biomedical Computer-Based Simulations And Models(EPA-Environmental Protection Agency) - The STAR program is issuing this request for applications (RFA) for research that will seek to apply high-performance computing technologies and theoretical mathematical techniques to facilitate the development of a predictive capacity for estimating outcomes or risk associated with particular toxicity processes as a result of environmental exposure to pollutants and toxicants. Expected Number of Awards: 2; Estimated Total Program Funding: $6,800,000 (Full Proposal Deadline: June 12, 2007).

5. Upcoming Meetings

GPN 2007: Markers, Milestones, and New Directions **The Great Plains Network Annual Meeting** – May 30, 31 & June 1, 2007; Kansas City, MO.

- Learn More…
- Registration…
- Call for Posters, Papers, Panels…

GPN Representative Council Teleconference — Fourth Wednesday of

every month at 10:00 a.m. Next: March 28, 2007.

Bioinformatics/Computational Biology Teleconference — First Wednesday of every month at 2:00 p.m. Next: April 4, 2007.

Middleware/Grid Teleconference — Alternate Fridays at 1:30 p.m. Next: March 16, 2007.

Middleware/Grid Tech Administration - Alternate Fridays at 1:30 p.m. Next: March 23, 2007.

NSF Regional Grants Conference — The second National Science Foundation Regional Grants Conference of fiscal year 2007 will be hosted by Oklahoma State University on **March 19 - 20, 2007** in Oklahoma City, with optional FastLane workshops on March 18th.

Oklahoma Supercomputing Symposium 2007 - Wed Oct 3, with a reception/poster session the evening of Tue Oct 2 at the University of Oklahoma. Link to register.

6. Subscription Information

Join the GPN email list here.

Join GPN Projects here.

Please send any notices to share with the GPN community to *denab@ksu.edu*.

Further information can be found at: http://collaboration.greatplains.net.