

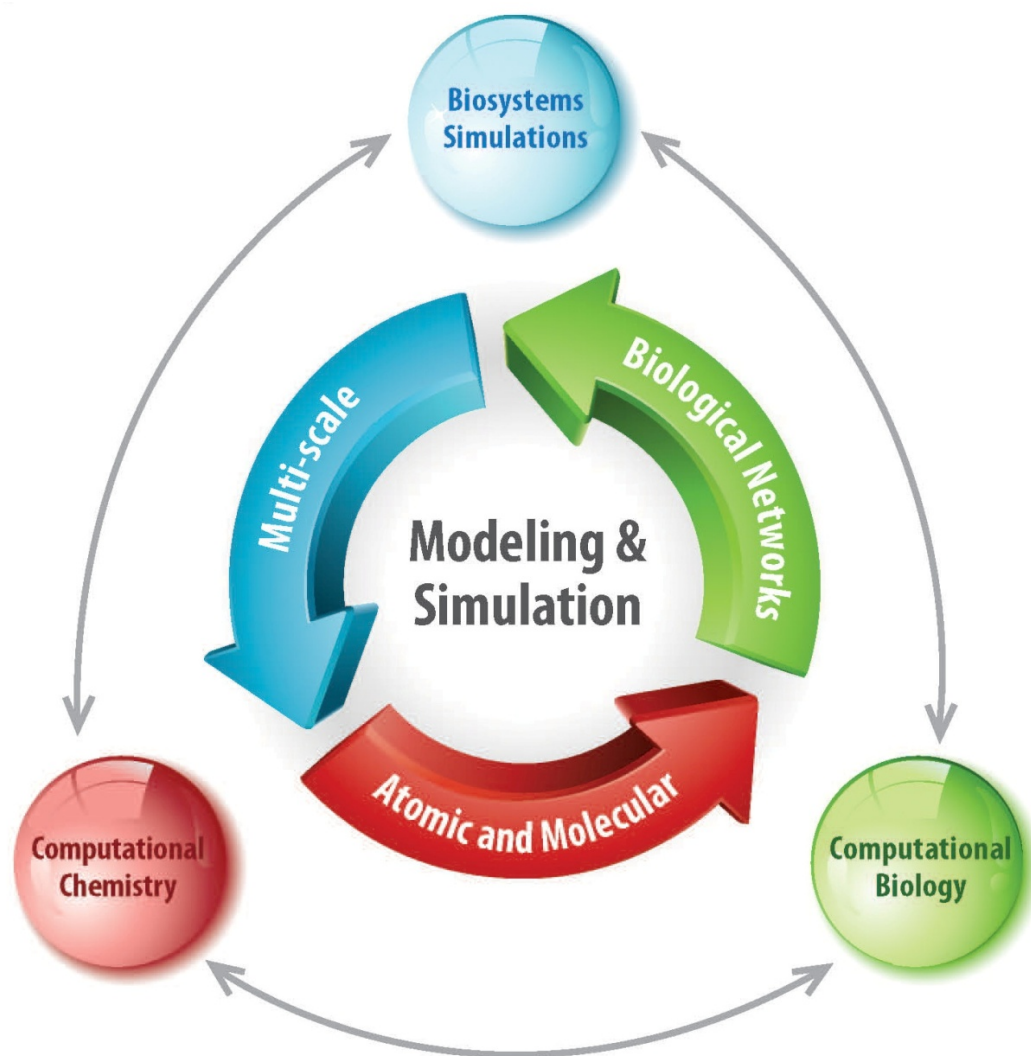


MS EPSCoR Science Coordination

Susan Bridges
Science Coordinator
2010 Mississippi EPSCoR State Meeting
April 15, 2010

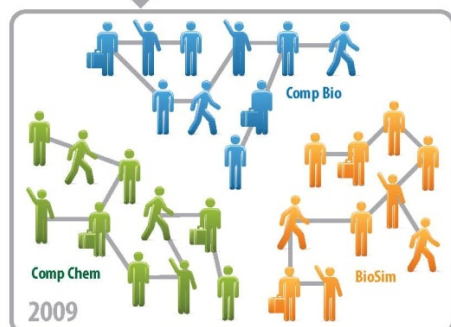
Science Coordination Goals

- **Establish cyber and human infrastructure**
 - Critical mass of people
 - Appropriate cyberinfrastructure
 - Sustainable research areas
- **Advance next generation computational modeling and simulation**
 - Multi-disciplinary
 - Multi-institutional
 - Cutting across focus areas

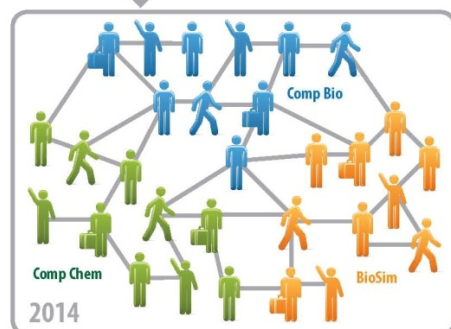




Current EPSCoR



Proposed EPSCoR



Integrative Activities

- **Steering Committee**
- **Seed Grants**
- **International Exchange**
- **Student Exchange**
- **Startup Funding**
- **Cyberinfrastructure**

Steering Committee

- **Major role in strategic planning, allocation of resources, science coordination**
- **Six member committee**
 - **Three research focus leaders**
 - **Three other members representing each focus group—rotate yearly**
- **Goals**
 - **Involve more researchers in EPSCoR administration**
 - **Provide leadership experience**
 - **Improve sustainability of research focus areas**



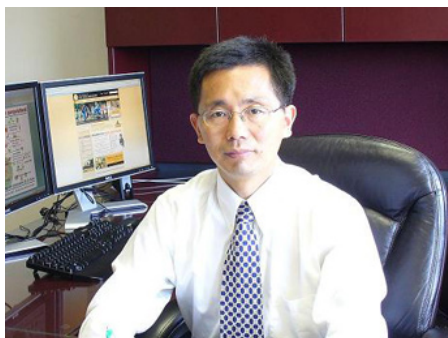
Raphael Isokpehi
CompBio, JSU



Keith Walters
BioSim, MSU



Greg Tschumper
CompChem, Ole Miss



Joe Zhang
CompBio, USM



Greg
Burgreen
BioSim, MSU



Keith Hollis
CompChem, Ole Miss

Seed Grant Program

“Up to 6 competitive seed grants of \$36,250 per year will be awarded to young faculty and/or experienced faculty changing fields consistent with our research goals.

Goals:

- Collect preliminary data**
- Develop innovative projects**
- Involve investigators at multiple institutions**
- RFP developed by Steering Committee**
- 20% match required on seed grants**

2010 Seed Grants

- **RFP issued in October 2010**
- **Proposals due November 15, 2009**
- **25 proposals submitted (2 linked)**
- **Steering Committee solicited at least 2 external reviewers for each proposal**
- **Steering Committee met in Jackson for NSF style panel**
- **Six grants selected for funding**

Dr. Annette Wysocki

Department of Surgery

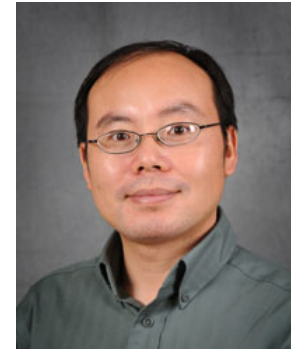
**University of Mississippi Medical Center
in collaboration with Hybrid Plastics**

**Engineering and testing of a
bionanohybrid cartilage using POSS and
type II collagen**



Dr. Xiu-feng (Henry) Wan

**College of Veterinary Medicine
Mississippi State University**



Dr. Nan Wang

**School of Computing
University of Southern Mississippi**



**Structural determinants for canine
influenza infection**

Dr. Jason Ritchie

**Department of Chemistry and
Biochemistry**

University of Mississippi

Dr. David Magers

**Department of Chemistry Biochemistry
Mississippi College**

**Computational and experimental
investigation of the mechanism of proton
conductivity in an anhydrous proton
conducting electrolyte**

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Dr. Ali Mohammed

Technology Department
Jackson State University



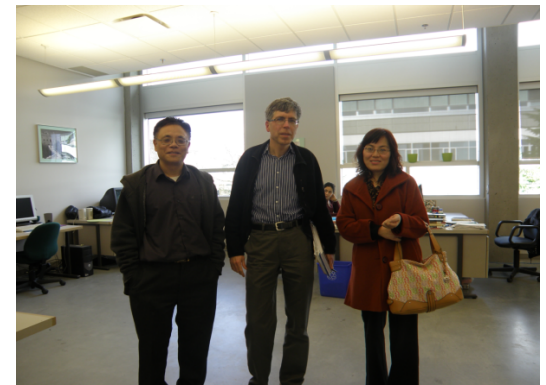
**Numerical and in-silico simulation of
electrodynamic effects on inhaled
aerosol particles deposition in the
human lung**

International Exchange Program

- **Fund travel by Mississippi undergraduate, graduate, and faculty to research institutions in other countries.**
- **Should also encourage scientists from other countries to come work in our laboratories.**
- **Lightweight proposal and approval process developed by Steering Committee**
 - **Specific benefit to core research**
 - **RFP is open at all times**
 - **Short proposals required**
 - **Steering committee considers proposals as received**
 - **\$18 K per year available at each of the four institutions**

International Exchange Status

- Two grant proposals processed to date
- One selected for funding—Nan Wang of USM and a graduate student traveled to Simon Fraser University to pursue collaboration with faculty members in computational biology
- Two additional proposals are currently under consideration and others expected to be submitted soon.



Nan Wang visits Dr. Wang and Dr. Ester at DDL



Startup Funds

- **Goal is to recruit and retain faculty in research focus areas**
- **Special emphasis on groups underrepresented in STEM**
- **\$37 K per year available to each university**
- **Expenditure must be approved by MRC**
- **One approved for 2010 (MSU Biochemistry Dept.)**

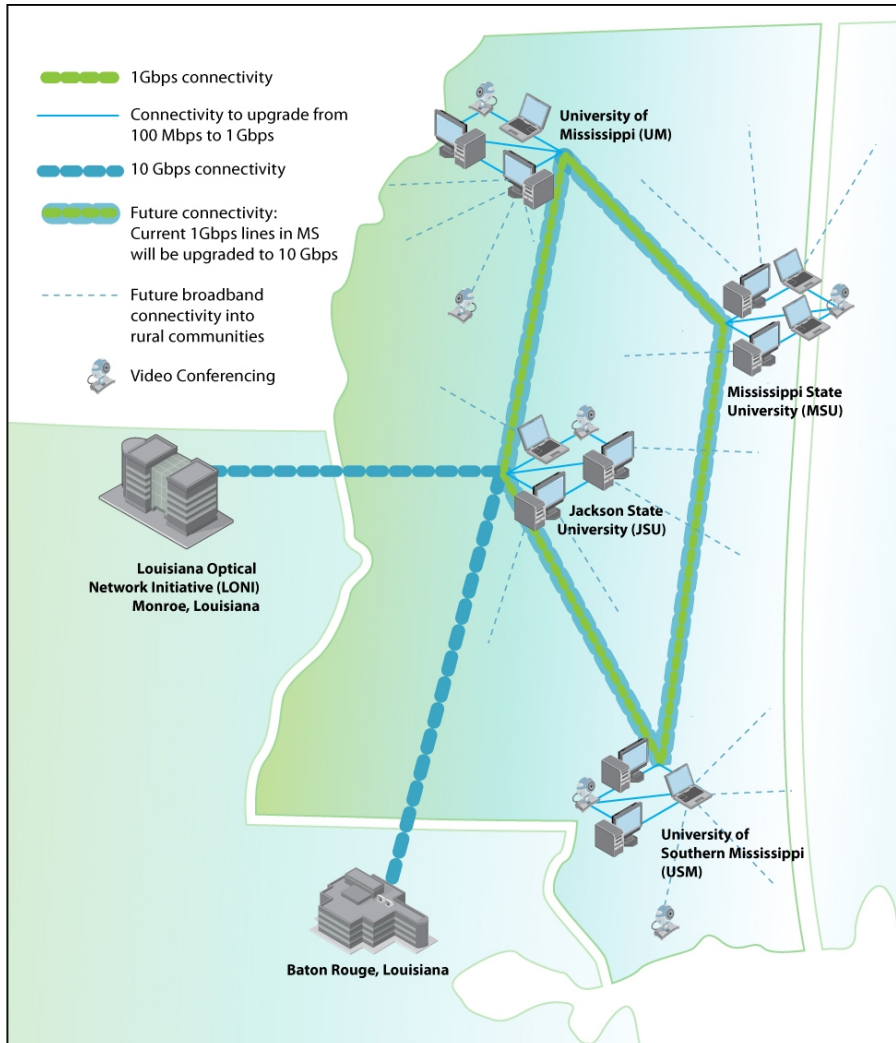
Student Exchange

- **Students from one MS EPSCoR lab work in lab of a collaborator at another university for about 1 week in the summer.**
- **Based on experience with building collaborations at individual institutions**
- **Several exchanges in the planning stage.**

Cyber Infrastructure

Improve support for

- Collaborative teams and virtual communities
- High performance computing access
- Ecoinformatics
- Computing resources and bandwidth at each university
- Bandwidth between universities and into the grid



Software to Support Research Collaborations

- **Selection committee appointed in October 2010.**
- **Established requirements**
- **Selected a set of products to review**
- **Viewed demos of 5 products**
- **Decision should be made next week**

High Performance Computing Access

- **Upgrade cluster at Mississippi Center for Supercomputing Research (MCSR)**
- **New computational biology servers at JSU and USM**

Cyber-Infrastructure for Ecoinformatics

- **Enabling biological application of the US system of weather radars requires algorithms that can classify and mine biological data**
- **Weather radar data used to train data mining algorithms must be independently verified to be biological in nature**
- **Building an infrastructure of portable animal tracking technologies for this purpose**
 - **Tracking radar**
 - **Collaborating with University of Illinois to adapt military fire control radar for biological applications**
 - **Retired military grade superstructure is being joined with current solid-state technology to create 2nd biological tracking radar in the western hemisphere**
 - **Radio telemetry**
 - **Collaborating with the US Army, USM acquired and deployed automated animal telemetry to understand animals' use of the atmosphere**
 - **First round of projects using automated telemetry towers was completed this past fall**

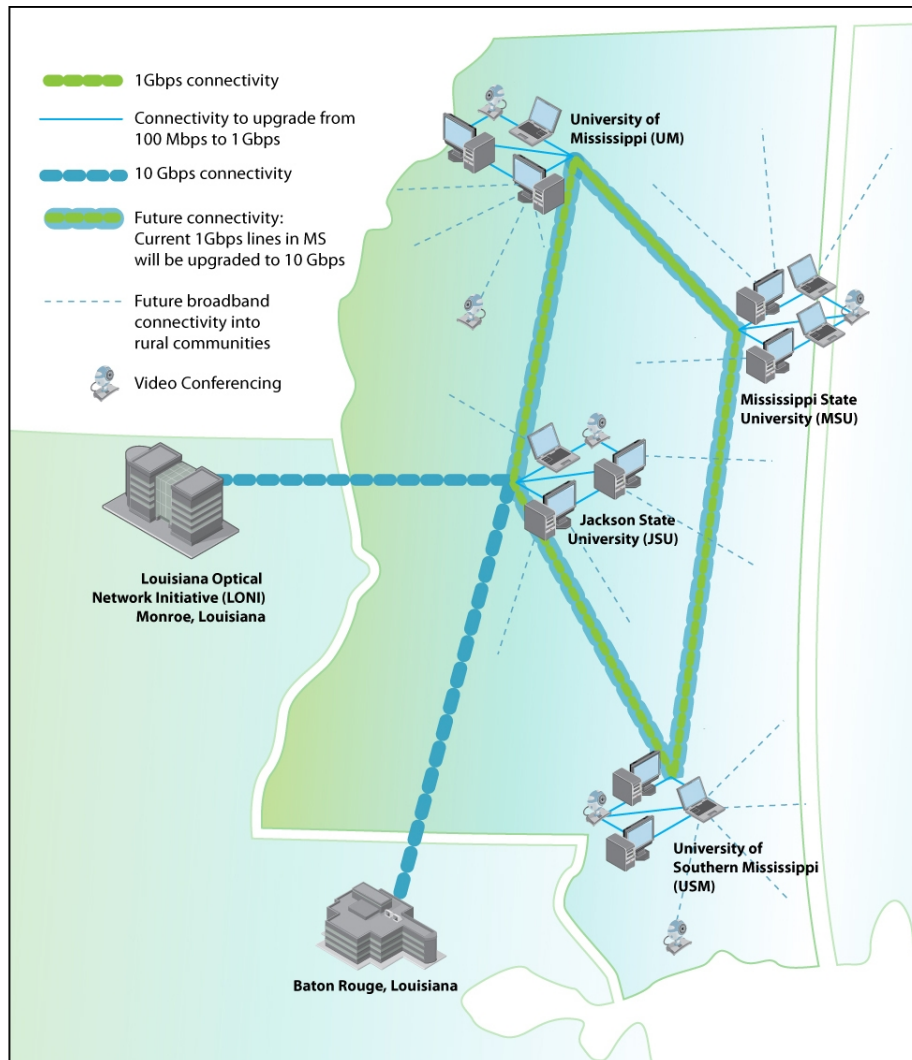


Fire control radar adapted for biological use



Automated telemetry tower along the Gulf coast

RII-C2 Grant Proposal



Goal: Enhance research collaboration and education in computational sciences

Long term: At least gigabit connectivity between campuses

Proposal Submitted

Broadening Workstation Connectivity to Enhance Research Productivity and Student Preparation in Computational Sciences

PI: Yogi Dandass, MSU

- **Glake Hill (JSU)**
- **Greg Tschumper and Jason Hales (UM)**
- **Joe Zhang (USM)**
- **Susan Bridges (MSU)**

Proposed Infrastructure

- **Significantly expand the number of workstations interconnected connected via gigabit-per-second links**
- **Establish an e-meeting facility**