

| Report Information | | | | |
|--------------------|--------------|------------|-------------------------|--------------|
| Award Type | Award Number | Prime DUNS | Calendar Year / Quarter | Final Report |
| Grant | 0915045 | 066470972 | 2010 / 3 | No |

| Award Recipient Information | |
|---|---|
| Recipient DUNS Number 066470972 | Recipient Address 1 107 SAMFORD HALL |
| Recipient Account Number 219046 | Recipient Address 2 |
| Recipient Congressional District 02 | Recipient City AUBURN |
| Parent DUNS Number 066470972 | Recipient State AL |
| Recipient Type 2U.95.G6.M8.OH.VW | Recipient ZIP Code + 4 368490001 |
| Recipient Legal Name AUBURN UNIVERSITY | Recipient Country USA |
| Recipient DBA Name | |

| Project / Award Information | |
|---|---|
| Funding Agency Code 4900 | Total Number of Sub Awards less than \$25,000/award 0 |
| Awarding Agency Code 4900 | Total Amount Sub Awards less than \$25,000/award 0.00 |
| Program Source (TAS) Code 49-0101 | Total Number of Sub Awards to Individuals 0 |
| Sub Account Number for Program Source | Total Amount of Sub Awards to Individuals 0.00 |
| CFDA Number 47.082 | Total Number of Payments to Vendors less than \$25,000/award 1 |
| Amount of Award 175777.00 | Total Amount of Payments to Vendors less than \$25,000/award 3000.00 |
| Award Date 09/14/2009 | |
| Award Description The investigator and his students will study poromechanical models analytically (existence and uniqueness), develop and rigorously analyze finite element based methods for approximating solutions of various model problems in poromechanics, and derive a-priori and a-posteriori error estimates. They will advance the underlying mathematical theory and the science of computer simulation of large-scale, complex, coupled, multi-scale phenomena. Deliverables may include scientific reports, journal publications, conference presentations, and computer programs. | |

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Project Information

| Project Name or Project/ Program Title | Studies in Poromechanics and Electro-Poromechanics | Activity Codes (NAICS or NTEE-NPC) (up to 10) |
|--|---|---|
| Quarterly Activities/ Project Description | <p>PI working with Y. Cao on the analysis and numerical analysis of a stationary poroelasticity model (we are studying the existence and uniqueness of solutions, and their numerical approximation). Writing a research paper with Y. Cao: "Steady Flow in a Compressible Porous Medium".</p> <p>Writing a research paper with L. W. Wolf, M.-K. Lee and G. Dyer "PFLOW: A 3-Dimensional Time-Dependent Pore-Pressure Diffusion Model".</p> <p>The first version of the Matlab program PFlow has been released, L. W. Wolf (Geology and Geography) has been handling its distribution to researchers and educators.</p> <p>PI gave a special session talk titled: "Steady Flow in a Deformable Porous Medium" in the Special Session on Recent Progress in Numerical Methods for Partial Differential Equations (organized by A. Demlow and X. Feng) at the 2010 Spring Southeastern Sectional Meeting of the AMS, which was held March 27-28, 2010 in Lexington, KY.</p> <p>This Quarter:</p> <p>PI co-organized with Y. Cao a mini-symposium on flow through porous media and related topics at the 2010 SIAM Annual Meeting, which was held July 12-16, 2010 in Pittsburgh, PA. PI presented at</p> | <p>Activity Code 1 B43 - NTEE</p> <p>Activity Code 2</p> <p>Activity Code 3</p> <p>Activity Code 4</p> <p>Activity Code 5</p> <p>Activity Code 6</p> <p>Activity Code 7</p> <p>Activity Code 8</p> <p>Activity Code 9</p> <p>Activity Code 10</p> |

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this conference.

PI worked with three Ph.D. graduate students (Mohammad Hamid Ullah Akanda, Keith D. (Dan) Brauss, and Song Chen.).

Next Quarter:

PI will continue working with and training three Ph.D. graduate students (see above).

PI also intends to continue collaboration with Y. Cao (Mathematics and Statistics) and L. W. Wolf, M.-K. Lee (Geology Geography).

Project Status Less than 50% completed
Total Federal Amount ARRA Funds Received/ Invoiced 48685.16
Number of Jobs 0.17
Description of Jobs Created Graduate Assistants
Total Federal Amount of ARRA Expenditure 48685.16
Total Federal ARRA Infrastructure Expenditure 0.00
Infrastructure Purpose and Rationale

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Infrastructure Contact

| Name | Street Address 1 |
|-------|------------------|
| Email | Street Address 2 |
| Phone | Street Address 3 |
| Ext | City |
| | State |
| | ZIP Code + 4 |

Primary Place of Performance

| | |
|-------------------------------|--|
| Address 1 | Department of Mathematics and Statistics |
| Address 2 | 221 Parker Hall |
| City | Auburn University |
| Country Code | US |
| State | AL |
| ZIP Code + 4 | 36849 - 0001 |
| Congressional District | 02 |

Recipient Highly Compensated Officers

| | | | |
|--|----|-------------------------------|--|
| Prime Recipient Indication of Reporting Applicability | No | Officer 3 Name | |
| Officer 1 Name | | Officer 3 Compensation | |
| Officer 1 Compensation | | Officer 4 Name | |
| Officer 2 Name | | Officer 4 Compensation | |
| Officer 2 Compensation | | Officer 5 Name | |
| | | Officer 5 Compensation | |

Report Audit Trail

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|------------------------|---------------------|
| Created By | Cindy Selman |
| Date Created | 10/06/2010 05:29 PM |
| Last Updated By | Cindy Selman |
| Last Updated On | 10/06/2010 05:29 PM |