An Invitation to Join 3S Laboratory for World-class Petroleum Research

July 1st, 2010

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Introduction to 3S Laboratory

- To identify and solve challenging technical problems for your company and the U.S. government.
- Laboratory space and equipments are available on campus.
- Need more funding to support research and to hire research scientists/associates/assistants.
- Companies pay a membership fee of $30,000/year to get full access to lab deliverables.
- 100% funds are spent on research and students, for the education of future engineers and leaders in petroleum and energy.

Benefits by Joining 3S Laboratory

1. Provide training for your employees
2. Solve your company's technical problems
3. Participate in and sponsor research activities
4. Receive software packages and publications
5. Attend technology transfer meetings
6. Access university resources such as professors, scientists, students, etc.
7. Obtain independent evaluations

Missions and Research Areas

Missions:

- To build new knowledge and develop new technologies for evaluation and development of unconventional resources (ultra-tight gas, shale gas, coalbed methane, shale oil, geothermal, etc)
- To educate future engineers and leaders in petroleum and the broader energy area

Research areas:

- Simulation: hydraulically fractured wells/fields, new models
- Stimulation: proppant, fluids, additives, and field tests
- Strategy: optimal development plan for different oil and gas reservoirs/fields

Laboratory Structure

The long-term plan for 3S Laboratory is to have:

- 1 director
- 2 full-time research scientists/associates
- graduate research assistants
- more undergraduate students

As of today, we have 9 graduate researchers and 3 undergraduate researchers in the lab. 2 more graduate students will be joining the lab in August.

Deliverables

Deliverables:

- State-of-the-art research in petroleum engineering
- New technologies and methodologies
- Software packages & reports
- Publications (paper, thesis, and dissertation)
- Well trained graduate and undergraduate students who hit the ground running

Technology & knowledge transfer meetings:

- Annual meeting on campus in the month of October
- Project meeting in the month of April on campus or in a convenient city

Two Choices to Join 3S Laboratory

Research funds mainly come from Penn State, DOE, NSF, NASA, and other government agencies.

To support research, 3S will also work with the industry in two ways:

- **A—**Companies pay the membership fee of $30,000/year to get full access to lab deliverables;
- **B—**Challenging or confidential projects from the industry, not shared with other members.

List of 2009 Projects (partial)

Status	No.	Title	Area	Application
O*	PSU3S_2009_001	Reservoir simulation study of new methods for IOR from a carbonate field in Alabama	SIM	Tubal,Laney,N. Beach
P*	PSU3S_2009_002	Reservoir simulation study of feasibility of CO2 sequestration and IOR in tight carbonate reservoirs	FRAC	
O	PSU3S_2009_003	New fracture fluid and technologies for ultra-tight gas wells	FRAC	Weyerhaeuser, Elk Sands
O	PSU3S_2009_004	Identification and remediation of gel damages in hydraulic fractured wells--field studies	FRAC	All fractured oil/gas wells
P	PSU3S_2009_005	Fracturing technology for shallow tight-gas formations in Pennsylvania	FRAC	
O	PSU3S_2009_006	Fracturing technology for deep tight-gas formations in Pennsylvania	FRAC	
O	PSU3S_2009_007	New simulation technology for hydraulically fractured Marcellus shale gas reservoirs	SIM	shale-gas reservoirs
O	PSU3S_2009_008	New predictive models for reserve assessment of shale gas reservoirs	SIM	shale-gas wells
P	PSU3S_2009_009	Effect of breakers on fractured well performances		all fracture treatmens
P	PSU3S_2009_010	Completion technologies for acceleration of recovery in thick tight gas wells		Anderson Tully, Phelps
P	PSU3S_2009_011	Effect of choke size and compressor on recovery		all gas wells
P	PSU3S_2009_012	Deliquification technology		all gas wells
P	PSU3S_2009_013	Investigation of jet pump for deep oil wells		Kingsdome and N. Beach
P	PSU3S_2009_014	Investigation of gas lift for shallow/deep gas wells		
P	PSU3S_2009_015	New fracture fluids and technologies for shale gas wells		
O	PSU3S_2009_016	Salting/scale mechanisms, diagnosis and solutions		all oil/gas wells
P	PSU3S_2009_017	Evaluation of frac effectiveness and hydraulic fractured wells		
P	PSU3S_2009_018	New methods for identification and optimization of underperformed wells		
*O means ongoing projects, P means proposed projects				

Have your own projects?
Just let us know.

Biography of Lab Director

John Yilin Wang has been a full-time faculty at the Pennsylvania State University as Assistant Professor of Petroleum and Natural Gas Engineering in the Department of Energy and Mineral Engineering since July 2009. Previously he was a petroleum reservoir engineer with a U.S. independent producer in Shreveport, Louisiana, where his work focused on reservoir evaluation, stimulation recommendation, and development of new fracturing technologies for the company's oil and gas fields in Texas, Arkansas, Louisiana, Mississippi and Alabama. Prior to this, he worked as a petroleum engineering consultant from 2004—2007 while he was a student.

John's teaching and research interests include reservoir evaluation, hydraulic fracturing, and development of unconventional resources (ultra-tight gas, shale gas, coalbed methane, shale oil, geothermal, etc). He received B.Sc. from the University of Petroleum of China (2003), M.Sc. from the University of Houston (2004), and Ph.D. from Texas A&M University (2008), all in petroleum engineering.

To support petroleum research at 3S Laboratory, please complete and return this form with a check payable to:

The Pennsylvania State University

Attn: John Yilin Wang

Penn State 3S Laboratory

202 Hosler Building

University Park, PA 16802

Company: _____

Phone: _____ Email: _____

Address: _____

We would like to support Penn State 3S Laboratory for petroleum research with

- membership fee of US$ _____
- a gift in the amount of US$ _____.

Thank you!

Penn State 3S Laboratory
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