



**Joint Session with SPE**  
**Four Points by Sheraton –**  
**Pittsburgh North**  
**11 September 2008**

**Fracture Architecture in Layered  
Rocks: Applying Concepts of  
Mechanical Stratigraphy to  
Reservoir Characterization**

*presented by*

**Michael R. Gross**

Florida International University

**Author CV**

Education

B.A., Geological Sciences and Anthropology,  
Columbia College, 1985

M.S., Geosciences, Pennsylvania State, 1989

Ph.D., Geosciences, Pennsylvania State, 1993

Professional Experience

*Florida International University, Miami, Florida*  
Associate Professor of Earth Sciences with Tenure,  
1998 – present  
Assistant Professor of Earth Sciences, 1993-1998

*Michael Gross Geosciences, Inc., Miami, Florida,*  
2005 - present  
President of consulting firm specializing in fractured  
reservoir characterization and training for O&G.

*Other positions held:*

Post-doctoral, Ben Gurion University, Israel, 1993

Graduate R.A. Pennsylvania State, 1986-1993

Exploration geologist (intern), Oryx Energy Co.,  
Dallas, TX, 1990

Field geologist, Occidental Petroleum, Salt Ranges,  
Pakistan, 1988

Exploration geologist (intern), Standard Oil  
Production, Houston, TX 1988

Research assistant, Lamont-Doherty Observatory,  
NY, 1984-1986

Field Experience

*Appalachian Valley & Ridge and Plateau of NE U.S.:*  
jointing, faulting, and folding (1985-1993).

*Salt Ranges of Pakistan:* fracture distribution related  
to lithology and hydrocarbon potential (1988).

*Monterey Formation of coastal California:*  
folding, fracturing, mechanical stratigraphy, and  
tectonic history; subsurface fractures in Elk Hills oil  
field (1989-present).

*Death Valley, California:* regional tectonics, basin  
and range extension (2006-present).

*Southern Israel:* mechanics of brittle failure, fold-  
related fracturing, fabrics related to flexural slip  
folding, neotectonic structures, regional stresses  
(1993-present).

*Northern Israel:* deformation associated with  
transpression along the Dead Sea Transform fault,  
Galilee region (2004-present).

*Laramide Fold Belt, Montana, Wyoming, Utah,  
Colorado:* fold-related fracturing, fault growth,  
mechanical stratigraphy, fault kinematic analysis  
(1995-present).

*Tien Shan Mountain Range, Kyrgyz Republic  
(former USSR):* fold mechanisms, strain analysis,  
formation of structurally-controlled ore deposits  
(1996).

*Cantabrian Fold Belt, Spain:* fold mechanisms, strain  
analysis, fracture development in massive carbonate  
rocks (1996-present).

Professional Memberships

Geological Society of America  
American Geophysical Union  
American Association of Petroleum Geologists  
American Rock Mechanics Association.

Recent Publications

Gross, M.R. and Eyal, Y., 2007, Throughgoing  
fractures in layered carbonate rocks:  
Geological Society of America Bulletin, v. 119, p.  
1387-1404.

Manda, A.K. and Gross, M.R., 2006b, Estimating  
aquifer-scale porosity and the REV  
for karst limestones using GIS-based spatial  
analysis, *in* Harmon, R.S. and Wicks, C.,  
eds., Perspectives on karst geomorphology,  
hydrology, and geochemistry – A tribute  
volume to Derek C. Ford and William B. White:  
Geological Society of America Special  
Paper 404, p. 177-189, doi 10.1130/2006.2404(15).

Manda, A.K. and Gross, M.R., 2006a, Identifying  
and characterizing solution  
conduits in karst aquifers through geospatial (GIS)  
analysis of porosity from borehole  
imagery: an example from the Biscayne aquifer,  
south Florida (U.S.A.): *Advances in  
Water Resources*, v. 29, p. 383-396.

**For reservations to this informative and  
entertaining evening, please complete the  
attached reservation form.**

## WHAT IS THE PAPG?

PAPG is a non-profit organization founded in 1984 to provide a forum for Petroleum Geologists in the Pittsburgh Area to meet socially and discuss technical topics relative to the exploration and development of reserves in the Northern and Central Appalachian Basin. PAPG is an affiliated association with AAPG (American Association of Petroleum Geologists) and has representation in the House of Delegates. Educational opportunities are provided via field trips, seminars and AAPG Sectional meetings, sponsored solely by PAPG or in conjunction with the PTTC (Petroleum Technology Transfer Council), PGS (Pittsburgh Geologic Society) and SPE (Society of Petroleum Engineers).

Although PAPG is predominately a geologic organization, numerous industry professionals including geophysicists, engineers, lawyers and landmen are among PAPG's members and find the interaction at meetings and educational opportunities beneficial to their professions. PAPG also encourages student membership and participation.

Meetings are typically held monthly from September through May in locations within 50 miles of downtown Pittsburgh. From time to time, meetings are held in conjunction with SPE and PGS.

## NEWS AND EVENTS

**PAPG Website:** Visit the website at <http://www.PAPGrocks.org>.

### **Mark your calendar now for these upcoming events:**

**September 12<sup>th</sup> - 13<sup>th</sup> 2008**

**PAPG Field Trip - "Zealous for the Marcellus II, the Pennsylvania Experience"**

**Trip Leader Terry Engelder - Penn State University**

*Visit website for details*

**October 9<sup>th</sup> 2008**

**2008 SPE/PAPG Annual Golf Outing**

**Chestnut Ridge Golf Club**

*Visit website for details*

**October 11<sup>th</sup> - 15<sup>th</sup> 2008, Pittsburgh PA**

**2008 AAPG-SPE Eastern Section**

<http://www.aapgspe2008.org/>

Co-Hosted by: Pittsburgh Association of Petroleum Geologists & Pittsburgh Petroleum Section SPE

**October 21<sup>st</sup> - 22<sup>nd</sup> 2008, Morgantown WV**

**North American CBM Forum, Inc. - Fall Session**

**For more information contact:**

Ihor Havryluk - (p) 412-445-5803 (e) [havryluk@zoominternet.net](mailto:havryluk@zoominternet.net)

Or

Dr. Kashi Aminian - (p) 304-293-7682 ext 3406 (e) [khashayar.aminian@mail.wvu.edu](mailto:khashayar.aminian@mail.wvu.edu)

### **Employment Opportunities:**

#### **Geologist**

Dominion Exploration & Production

Indiana, PA

Seeking - A petroleum geologist with "gas factory" drilling program exp targeting tight sands and shales. Preferred candidates will have at least 3-5 years exp with major corp or large independent. Master's degree required. To apply visit [www.dom.com](http://www.dom.com). EOE,M/F/D/V

For more details on this listing and other listings visit the classified section of [PAPGrocks.org](http://PAPGrocks.org)

***Have information you want to share with the organization?***

***Please contact the secretary to add the information to the next newsletter.***

## SPONSORS

**The new PAPG year has begun. The PAPG wishes to thank the companies who have contributed to the PAPG 2007-08 season. To sponsor the new 2008-2009 year please contact Jim Pancake or Dave Boyer.**

### **Sponsor Information**

*If you or your company would like to sponsor the PAPG and help support the continuation of our Meetings, Field Trips, and other events, we ask that you send a donation to the PAPG. Any contribution of \$100.00 or more by any group or individual will be recognized on our website, in the monthly newsletter, and at scheduled monthly meetings.*

*We ask that you show your support for the PAPG by a contribution and your continuing attendance at the monthly meetings.  
We appreciate your continued support.*

Contributions may be sent to: PAPG, PO BOX 16352, GREENTREE PA 15242-0352

## CONTACT THE PAPG

### **PAPG Officers:**

- President:**                    **Jim Pancake** --Equitable Production Co.  
Phone: 412-395-3912  
Email: [jpancake@eqt.com](mailto:jpancake@eqt.com)
- Vice President:**           **Eric Ober** -- Texas Keystone, Inc.  
Phone: 412-388-0917  
Email: [eober@texaskeystone.com](mailto:eober@texaskeystone.com)
- Secretary:**                 **Dave Boyer** -- Texas Keystone, Inc.  
Phone: 412-434-5616  
Email: [dboyer@texaskeystone.com](mailto:dboyer@texaskeystone.com)
- Treasurer:**                **Tracee Imai**-- Schlumberger DCS.  
Phone: 412-787-5403  
Email: [timai@slb.com](mailto:timai@slb.com)
- AAPG Delegate:**          **Doug Patchen** – Petroleum Technology Transfer Council  
Phone: 304-293-2867 ext 5443  
Email: [doug.patchen@mail.wvu.edu](mailto:doug.patchen@mail.wvu.edu)

## PAPG 2008-2009 DUES

**PAPG dues for the 2008-2009 season are now DUE!**

*The membership form is attached to this newsletter. Please fill the form out **completely** so that we can ensure that we have your latest contact information. We are planning to publish a membership directory this year and your updated information is crucial.*

# NOTICE OF SEPTEMBER 11<sup>TH</sup> MEETING PITTSBURGH ASSOCIATION OF PETROLEUM GEOLOGISTS

**DATE:** Thursday 11, September 2008

**PLACE:** Four Points by Sheraton - Pittsburgh North  
910 Sheraton Drive  
Mars, PA 15090  
724-776-6900

**TIME:** 5:00 PM – Social Hour (w/ Cash Bar)  
6:00 PM – Dinner  
7:00 PM – Speaker

**TOPIC:** “Fracture Architecture in Layered Rocks: Applying Concepts to Mechanical Stratigraphy to Reservoir Characterization.”

**SPEAKER:** Michael R. Gross - Florida International University

**COST:** \$30.00  
\$10.00 Students  
(Checks payable to PAPG)

**DINNER OPTIONS:** Pistachio Encrusted Chicken  
or  
Sole Rebecca  
or  
Roasted Sirloin of Beef

**RESERVATIONS:** Call, email, fax, or mail this reservation form by September 5, 2008 to:

**Barbara A. Purks**  
412-787-5403 (phone)  
412-787-2906 (fax)  
bpurks@pittsburgh.oilfield.slb.com

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NAME(S) \_\_\_\_\_

COMPANY  
\_\_\_\_\_  
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DINNER CHOICE(S)  
\_\_\_\_\_



**P·A·P·G**

Pittsburgh Association of  
Petroleum Geologists

An AAPG Affiliated Society

www.papgrocks.org

## **APPLICATION FOR MEMBERSHIP AND MEMBERSHIP RENEWAL**

PLEASE INDICATE YOUR MEMBERSHIP STATUS BY CHECKING THE APPROPRIATE BOX:

PROFESSIONAL - RENEWAL

STUDENT - RENEWAL

PROFESSIONAL – NEW MEMBERSHIP

STUDENT - NEW MEMBERSHIP

The **PITTSBURGH ASSOCIATION OF PETROLEUM GEOLOGISTS** membership year runs from JUNE 1 through MAY 31. Monthly meetings are usually held the second Thursday of the month from September through May.

**Professional Dues are \$25.00 per year**

**Student Dues are \$10.00 per year**

**NEW APPLICATION:** If you have never been a member of PAPG, please fill out the remainder of the form, obtain the signatures of two members to sponsor you, and mail check, payable to PAPG, to the address below.

**RENEWAL:** Please fill out the mailing address/directory information below if your contact information has changed and submit dues, payable to PAPG, to the address below.

**Mail completed form and dues payment (checks only - Payable to PAPG) to:**

Dave Boyer  
Texas Keystone, Inc.  
560 Epsilon Drive  
Pittsburgh, PA 15238

### **MAILING ADDRESS / DIRECTORY INFORMATION – PLEASE COMPLETE ALL INFORMATION**

NAME \_\_\_\_\_ DATE \_\_\_\_\_

COMPANY / UNIVERSITY \_\_\_\_\_

ADDRESS \_\_\_\_\_

CITY \_\_\_\_\_ STATE \_\_\_\_\_ ZIP \_\_\_\_\_

JOB TITLE: \_\_\_\_\_

EMAIL: \_\_\_\_\_ **Please fill this in – help us save those mailing costs!**

PHONE: (        ) \_\_\_\_\_ - \_\_\_\_\_

FAX: (        ) \_\_\_\_\_ - \_\_\_\_\_

**WOULD YOU BE INTERESTED IN PAPG PARTICIPATION?:**                      Officer                      Speaker

**WOULD YOU LIKE YOUR CONTACT INFORMATION PLACED  
IN THE MEMBERSHIP DIRECTORY (available to members only?)**                      Yes                      No

### **TWO SPONSORS REQUIRED for NEW MEMBERS**

Name \_\_\_\_\_ Date \_\_\_\_\_

Name \_\_\_\_\_ Date \_\_\_\_\_