

Jon E. Olson, P.E.
Associate Professor
Oryx Energy Company Centennial Fellow #2
Department of Petroleum and Geosystems Engineering
The University of Texas at Austin
Austin, Texas 78712
(512) 471-7375
e-mail: jolson@mail.utexas.edu
WWW Home Page: <http://www.pe.utexas.edu/~jolson>

PUBLICATIONS:

A. Refereed Archival Journal Publications

Papers Published

- Olson, Jon**, (in press), "Sublinear scaling of fracture aperture versus length: an exception or the rule?," **Journal of Geophysical Research**.
- Du, Jing, and **Olson, Jon**, 2001, "A poroelastic reservoir model for predicting subsidence and mapping subsurface pressure fronts," **Journal of Petroleum Science & Engineering**, **30**, p. 181-197.
- Holder, Jon, **Olson, Jon E.**, and Philip, Zeno, 2001, "Experimental determination of subcritical crack growth parameters in sedimentary rock," **Geophysical Research Letters**, p. 599-602.
- Laubach, Steve, Marrett, Randy, and **Olson, Jon**, 2000, "New directions in fracture characterization," **The Leading Edge**, p. 704-711.
- Hennings, Peter H., **Olson, Jon E.**, and Thompson, Laird B., 2000, "Combining outcrop and three-dimensional structural modeling to characterize fractured reservoirs: an example from Wyoming," **American Association of Petroleum Geologists Bulletin**, p. 830-849.
- Blanton, T. L. and **Olson, J. E.**, 1999, "Stress magnitudes from logs: effects of tectonic strains and temperature," **SPE Reservoir Evaluation and Engineering**, pg 62-68.
- Laubach, S., Marrett, R., **Olson, J.**, and Scott, A. R., 1998, "Characteristics and origins of coal cleat: A review," **International Journal of Coal Geology**, pg 175-207.
- Olson, Jon E.**, 1993, "Joint pattern development: the effects of subcritical crack growth and mechanical interaction," **Journal of Geophysical Research**, v. 98(B7), p. 12,251-12,265.
- Olson, Jon E.**, and Pollard, David D., 1991, "The initiation and growth of en echelon veins," **Journal of Structural Geology**, v. 13(5), p. 595-608.
- Withjack, Martha O., **Olson, Jon**, and Peterson, Eric, 1990, "Experimental models of extensional forced folds," **American Association of Petroleum Geologists Bulletin**, v. 74(7), p. 1038-1054.
- Olson, Jon**, and Pollard, David D., 1989, "Inferring paleostresses from natural fracture patterns: A new method," **Geology**, v. 17, p. 345-348.
- Clement, Mark A., Olson, Hilary C., and **Olson, Jon E.**, 1986, "Oil and gas economic analysis with LOTUS 1-2-3," **Geobyte**, v. 1(2), p. 32-36.

Papers in Review

- Olson, J.E.**, (invited, presentation given by **Olson** in England August 2001), "Fracture swarms: A mechanical paradox?," in *Mechanisms of Jointing in the Crust*, edited by J. W. Cosgrove and T. Engelder, **Geological Society of London Special Publication**.
- Philip, Zeno, Jennings, James, and **Olson, Jon**, "Estimating Permeability Multipliers for Reservoir Flow Simulation from Geomechanically Simulated, Weakly Connected, Fracture Networks," **Journal of Petroleum Science and Engineering**.

B. Refereed Conference Proceedings

- Rijken, Peggy, Holder, Jon, **Olson, Jon E.** and Laubach, Stephen E., 2002, "Natural Fracture Characterization within the Travis Peak Formation, East Texas," Gulf Coast Association of Geologists Society, Austin, TX, October 30-November 1.
- Olson, J. E., Holder, J., and Rijken, P., 2002, "Quantifying the Fracture Mechanics Properties of Rock for Fractured Reservoir Characterization," Arlington, TX, October 20-23.
- Philip, Zeno, Jennings, James, **Olson, Jon** and Holder, Jon, 2002, "Modeling Coupled Fracture-Matrix Fluid Flow in Fracture Patterns Generated using a Geo-Mechanical Crack Growth Simulator," 2002 SPE Annual Technical Conference and Exhibition, San Antonio, TX, September 29 – October 2.
- Olson, J. E.**, Narayanasamy, R., Holder, J., Rauch, A., and Camacho, B., 2002, "DEM Study Of Wave Propagation In Weak Sandstone," Third International Conference on Discrete Element Methods, Santa Fe, NM, September 22-25.
- Olson, J. E.**, Holder, J., Qiu, Y. and Rijken, M., 2001, "Constraining the spatial distribution of fracture networks in naturally fractured reservoirs using fracture mechanics and core measurements," 2001 SPE Annual Technical Conference and Exhibition, New Orleans, LA, Sept. 30 – Oct. 3.
- Stowell, J. F. W., Laubach, S. E., and **Olson, J. E.**, 2001, "Effect of modern state of stress on flow-controlling fractures: a misleading paradigm in need of revision," DC Rocks, US Symposium on Rock Mechanics, Washington, D.C. June 2001.
- Olson, J. E.**, Blanton, T. L., and Stanley, G., 1998, "Impact of new stress profiling methods on hydraulic fracture geometry and field economics: examples from South Texas Canyon Sands and California Diatomite," 1998 SPE Annual Technical Conference and Exhibition, New Orleans, LA, September 27-30.
- Olson, J. E.**, Hennings, P. H., and Laubach, S. E., 1998, "Integrating wellbore data and geomechanical modeling for effective characterization of naturally fractured reservoirs," SPE/ISRM Eurock Conference, Trondheim, Norway, July 8-10.
- Blanton, T. L. and **Olson, J. E.**, 1997, "Stress magnitudes from logs: effects of tectonic strains and temperature," 1997 SPE Annual Technical Conference and Exhibition, San Antonio, Texas, October 5-8.
- Olson, Jon E.**, 1997, "Natural fracture pattern characterization using a mechanically-based model constrained by geologic data - moving closer to a predictive tool," 36th U. S. Rock Mechanics Symposium, New York City.
- Olson, Jon E.**, Du, Yijun and Du, Jing, 1997, "Tiltmeter data inversion with continuous, non-uniform opening distributions: a new method for detecting hydraulic fracture geometry," 36th U. S. Rock Mechanics Symposium, New York City.
- Olson, Jon E.**, 1995, "Fracturing from highly deviated and horizontal wells: numerical analysis of non-planar fracture propagation," SPE Mountain Regional and Low Permeability Meeting, Denver, CO, March 1995, 13 pp.
- Pollard, David D., Zeller, Scott, **Olson, Jon**, and Thomas, Andrew, 1990, "Understanding the process of jointing in brittle rock masses," in W. A. Hustrulid and G. A. Johnson, eds., Rock Mechanics Contributions and Challenges: Proceedings of the 31st U.S. Symposium on Rock Mechanics, A. A. Balkema, Rotterdam, p. 447-454.
- Olson, Jon**, and Pollard, David D., 1988, "Inferring stress states from detailed joint geometry," in Cundall et al., eds., Key Questions in Rock Mechanics: Proceedings of the 29th Annual U.S. Symposium on Rock Mechanics, A. A. Balkema, Rotterdam, p. 159-167.

C. Technical Reports

- Olson, J. E.**, and Raizada, Shashank, "Hydraulic fracturing in naturally fractured reservoirs," Improved Well Performance Research Program, Center for Petroleum and Geosystems Engineering, The U. of Texas, Austin (February 2001).

- Olson, J. E.**, Du, J., "Monitoring reservoir processes through surface deformation," Reservoir Engineering Research Program, Center for Petroleum and Geosystems Engineering, The U. of Texas, Austin (March 1999).
- Olson, J. E.**, and Yew, C., "Hydraulic fracturing from horizontal wells," Improved Well Performance Research Program, Center for Petroleum and Geosystems Engineering, The U. of Texas, Austin (February 1999).
- Olson, J. E.**, "Mechanics-based inversion methodology for the characterization of naturally fractured reservoirs," Category A Research, Fourteenth Annual Report, Enhanced Oil and Gas Recovery Research Program, Center for Petroleum and Geosystems Engineering, The U. of Texas, Austin (March 1998) 58-80.
- Olson, J. E.**, "Mechanics-based inversion methodology for the characterization of naturally fractured reservoirs," Category A Research, Fourteenth Annual Report, Enhanced Oil and Gas Recovery Research Program, Center for Petroleum and Geosystems Engineering, The U. of Texas, Austin (March 1997) 25-30.
- Bureau of Economic Geology, "Using microstructure observations to quantify fracture properties and improve reservoir simulations," Annual Report submitted to BDM-Oklahoma, Inc. (contractor to the Department of Energy), Subcontract No. G4S51732 (March 1997).
Final Report on Tiltmeter Modeling Code Development Research, 1997, Lawrence Livermore Laboratory, Agreement No. B333254.

ORAL PRESENTATIONS:

A. Professional Society Presentations

- Stowell, J., Marrett, R., Laubach, S. and **Olson, J.**, 2001, "Understanding fractured carbonate reservoirs," 2001 AAPG Annual Meeting and Technical Conference, Denver, CO, June 3-6.
- Holder, J., Philip, Z. and **Olson, Jon E.**, 1999, "Experimental study of subcritical crack growth in porous rock," AGU Fall Annual Meeting, San Francisco, Dec. 13-17.
- Hennings, Peter H., and **Olson, Jon E.**, 1999, "Quantitatively calibrating 3D structural models for prediction of fracture intensity and reservoir compartmentalization," AAPG Annual Meeting and Technical Conference, San Antonio, TX, Apr. 11-14.
- Marrett, Randall, Laubach, Stephen, Rossen, William, **Olson, Jon** and Lake, Larry, 1998, "Integration of new fracture observation, characterization, and fluid-flow modeling technology," AAPG Annual Meeting and Technical Conference, Salt Lake City, UT, May 17-20.
- Hennings, Peter H., **Olson, Jon E.**, and Thompson, L. B., 1997, "Combining outcrop and 3-D structural modeling to characterize fractured reservoirs: an example from Wyoming," Rocky Mountain Association of Geologists Meeting, Denver, Colorado.
- Hennings, Peter H., and **Olson, Jon E.**, 1997, "The relationship between bed curvature and fracture occurrence in a fault-propagation fold," AAPG Annual Meeting and Technical Conference, Dallas, TX, Apr. 6-9.
- Olson, Jon E.**, and Hennings, Peter H., 1996, "Regional versus local fracturing in a Laramide fault propagation fold, Oil Mountain, Wyoming," GSA Annual Meeting, Denver, October 1996.
- Olson, Jon E.**, 1995, "The influence of bed thickness on fracture pattern geometry: Results from a 3d mechanical model," AGU Annual Fall Meeting, Dec. 11-15.
- Olson, Jon E.**, 1994, "The effects of strain rate and subcritical crack growth on fracture pattern growth," First North American Rock Mechanics Symposium, Pre-Meeting Fracture Workshop, Austin, Texas.
- Olson, Jon E.**, 1989, "Fracture mechanics analysis of joint pattern development," Abstracts with Program, GSA 1989 Annual Meeting, St. Louis, Missouri, Nov. 6-9.
- Thomas, Andrew L., **Olson, Jon**, and Pollard, David D., 1989, "Paleostress determinations from

fracture patterns: Results from an experimental study," Abstracts with Program, GSA 1989 Annual Meeting, St. Louis, Missouri, Nov. 6-9.

Olson, Jon E., and Withjack, Martha O., 1988, "Experimental and analytical models of extensional forced folds: Applications to Gulf of Suez and Offshore Norway," AAPG Annual Meeting and Technical Conference, Houston, TX, Mar. 20-23.

B. Invited Lectures

Olson, J.E., 2001, "Predicting fracture length distributions and fracture clustering based on subcritical crack growth," Mechanisms of Jointing in the Crust: A Paul Hancock Memorial Meeting, Weston-super-Mare, England, August 1-4.

Laubach, S.E., and **Olson, J.E.**, 2001, "Interaction between diagenetic reactions and mechanics of opening-mode fractures: the message from crack-seal texture," Mechanisms of Jointing in the Crust: A Paul Hancock Memorial Meeting, Weston-super-Mare, England, August 1-4.

Olson, Jon E., 2001, "Fractured reservoir characterization," 3-day workshop for Japan National Oil Company, Tokyo, Japan, July 2-4.

Hennings, Peter H., and **Olson, Jon E.**, 1997, "The relationship between 3D surface curvature, flexural slip strains and fracture occurrence in a clastic reservoir volume within a fault propagation fold," AAPG Hedberg Conference - Detection and Characterization of Hydrocarbon Reservoir Deformation, Bryce, Utah, June 22-28.

Olson, Jon E., 1997, "Regional versus folding-enhanced fracturing: a field example and modeling results," Naturally Fractured Reservoir Forum, Petroleum Recovery Research Center, Socorro, NM, October 28, 1997.

Olson, Jon E., 1996, "Post-compressional relaxation and orthogonal fracture development," Fractured Aquifers and Petroleum Reservoirs Symposia, 30th Annual Meeting of the South-Central Section of the Geological Society of America, Austin, Texas, March 11-12.

PATENTS:

El-Rabaa, Wadood, and **Olson, Jon E.**, "Wellbore-guided hydraulic fracturing," Assignee - Mobil Oil Corporation, Patent # 05482116, January 9, 1996.

PROFESSIONAL SOCIETY WORKSHOPS:

Olson, Jon E., Marrett, R., and Laubach, S., Nov. 2000, Fractured Reservoir Characterization, American Association of Petroleum Geologists.

Olson, Jon E., Marrett, R., and Laubach, S., Nov. 1999, Fractured Reservoir Characterization, American Association of Petroleum Geologists.

VITA:

Jon E. Olson is an associate professor of the Department of Petroleum and Geosystems Engineering at The University of Texas at Austin. He holds B.S. degrees in Civil Engineering and Earth Sciences from the University of Notre Dame and a Ph.D. degree in Applied Earth Sciences from Stanford University. Dr. Olson has published on the topics of hydraulic fracturing, fractured reservoir characterization and rock mechanics. He has been on the faculty at UT since 1995, prior to which he worked 6 years for Mobil Research and Development Corporation in Dallas, Texas.