BIOGRAPHY

Anthony R. Ingraffea, Ph.D., P.E.

Dwight C. Baum Professor of Engineering
Cornell University

Dr. Ingraffea is the Dwight C. Baum Professor of Engineering and a Weiss Presidential Teaching Fellow at Cornell University where he has been since 1977. He holds a B.S. in Aerospace Engineering from the University of Notre Dame, an M.S. in Civil Engineering from Polytechnic Institute of New York, and a Ph.D. in Civil Engineering from the University of Colorado. Dr. Ingraffea's research concentrates on computer simulation and physical testing of complex fracturing processes. He and his students performed pioneering research in the use of interactive computer graphics and realistic representational methods in computational fracture mechanics. He has authored with his students and research associates over 250 papers in these areas, and is Director of the Cornell Fracture Group (www.cfg.cornell.edu). Since 1977, he has been a principal or co-principal investigator on over $35M in R&D projects from the NSF, EXXON, NASA Langley, Nichols Research, NASA Glenn, AFOSR, FAA, Kodak, U. S. Army Engineer Waterways Experiment Station, U.S. Dept. of Transportation, IBM, Schlumberger, Gas Technology Institute, Sandia National Laboratories, the Association of Iron and Steel Engineers, General Dynamics, Boeing, Caterpillar Tractor, DARPA, and Northrop Grumman. Professor Ingraffea was a member of the first group of Presidential Young Investigators named by the National Science Foundation in 1984. For his research achievements in hydraulic fracturing he has won the International Association for Computer Methods and Advances in Geomechanics "1994 Significant Paper Award", and he has twice won the National Research Council/U.S. National Committee for Rock Mechanics Award for Research in Rock Mechanics (1978, 1991). He became a Fellow of the American Society of Civil Engineers in 1991, and named the Dwight C. Baum Professor of Engineering at Cornell in 1992. His group won a NASA Group Achievement Award in 1996, and a NASA Aviation Safety /Turning Goals into Reality Award in 1999 for its work on the aging aircraft problem. He became Co-Editor-in-Chief of *Engineering Fracture Mechanics* in 2005. In 2006, he won ASTM's George Irwin Medal for outstanding research in fracture mechanics, and in 2009 was named a Fellow of the International Congress on Fracture. *TIME* Magazine named him one of its "People Who Mattered" in 2011, and he became the first president of Physicians, Scientists, and Engineers for Healthy Energy, Inc. (www.psehealthyenergy.org) in that same year.

www.ce.jhu.edu

THE RICHARD J. CARROLL MEMORIAL LECTURESHIP

The Richard J. Carroll Memorial Lectureship in Civil Engineering was established at The Johns Hopkins University to commemorate one of Baltimore's leading structural engineers, Richard J. Carroll, P.E. The lectureship was endowed by the many friends and admirers of Mr. Carroll, who passed away in 1982. The endowment contributes to the ongoing guest seminars in the Department of Civil Engineering and provides for these special lectures.

Richard J. Carroll, P.E. received his bachelor of civil engineering degree from Villanova University in 1955 and studied advanced structural design at The Johns Hopkins University and George Washington University. He was chief structural engineer for the firms of Knoerle, Bender, Stone, and Associates, and Ewell, Bomhardt and Associates and chief field engineer for the Portland Cement Association. In 1964 he founded his own firm, Carroll Engineering, Inc., which grew to 26 employees under his leadership. Mr. Carroll made contributions to the civil engineering profession through his membership in numerous professional societies and he published several papers on concrete use and design with an emphasis on post-tensioned and pre-stressed concrete. He also taught courses in ultimate strength design and plastic design in steel. His untimely death at the age of 49 left a legacy of professionalism, integrity, and vigor.

Donors to the Carroll Memorial Lectureship include:

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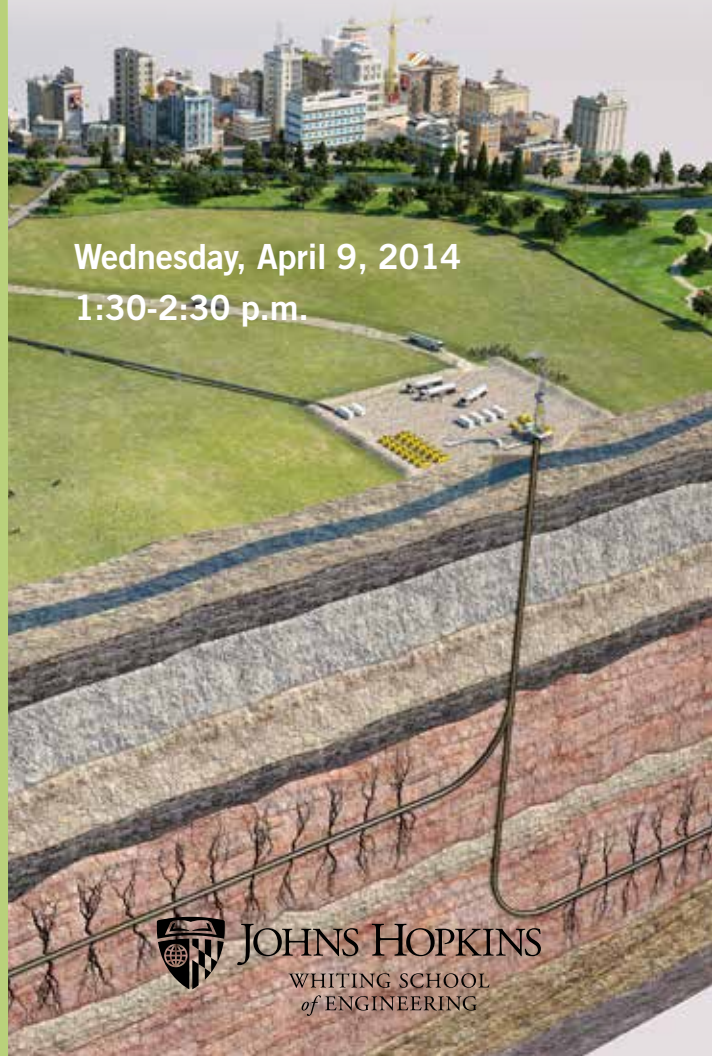
Civil Engineering
at JOHNS HOPKINS UNIVERSITY

THE JOHNS HOPKINS UNIVERSITY
DEPARTMENT OF CIVIL ENGINEERING
2014 RICHARD J. CARROLL MEMORIAL LECTURESHIP

GEOLOGY RULES: Unconventional Development of Gas/Oil from Shale Formations

Anthony R. Ingraffea, Ph.D., P.E.

Dwight C. Baum Professor of Engineering
Cornell University



Wednesday, April 9, 2014
1:30-2:30 p.m.

JOHNS HOPKINS
WHITING SCHOOL
of ENGINEERING

2014 Richard J. Carroll Memorial Lectureship

Anthony R. Ingraffea, Ph.D., P.E.
Dwight C. Baum Professor of Engineering
Cornell University

Wednesday, April 9, 2014
1:30-2:30 p.m.

The Johns Hopkins University
Hodson Hall, 3rd Floor Boardroom

Afternoon Seminar
1:30–2:30 p.m., Hodson Hall, 3rd Floor Boardroom

GEOLOGY RULES:
Unconventional Development of Gas/Oil from Shale Formations

We will explore some myths and realities concerning large-scale development of the unconventional natural gas/oil resource in shale deposits. On a local scale, these concern geological aspects of the plays, and the resulting development and use of directional drilling, high-volume, slickwater, hydraulic fracturing, multi-well clustered pad arrangements, and the impacts of these technologies on waste production and disposal, and possible contamination of water supplies. On a global scale, we will also explore the cumulative impact of unconventional gas development on greenhouse gas loading of the atmosphere.

Evening Talk
8:00–8:30 p.m., The Engineers Club

Why NOT Shale Gas/Oil?

Can we connect the dots among shale gas/oil production (commonly miss-titled as “fracking”), climate change, environmental protections, energy independence, quality of life, and energy security? What if we can’t? As engineers we are familiar with the process of design under constraints. Let’s have a discussion about designing a national energy policy under realistic constraints.

Events at ASCE Meeting:

6:00 p.m. ..... Cocktails
7:00 p.m. ..... Dinner
8:00 p.m. ..... After Dinner Seminar
By Anthony Ingraffea

The Engineers Club
11 W. Mount Vernon Place
Baltimore, MD 21201

Register at ascemd.org