

**Harvard University Solid Earth Physics Seminar
and SEAS Applied Mechanics Colloquium**

1:15 p.m. Tuesday 18 February 2014
Haller Hall (room 102 of Geological Museum)
24 Oxford Street

***Geology Rules: Unconventional Development
of Oil/Gas from Shale Formations***

Anthony R. Ingraffea
Civil and Environmental Engineering
Cornell University

Abstract: 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.