



***Geophysical Society of Pittsburgh  
and the  
Pittsburgh Association of  
Petroleum Geologists***



***Proudly Presents Thursday, September 15, 2022  
At Cefalo's Restaurant, Carnegie, PA .***

**A deep dive into the Hydrogen resource; framework, chemistry, geophysics and possible paths forward.**

***This talk will be presented in-person by:***

***William Harbert,  
University of Pittsburgh***

In this seminar topics relevant to the storage and utilization of Hydrogen to enhance global energy security and sustainability are presented. Hydrogen is especially appealing for energy utilization because of a high energy density of the resource and the lack of CO<sub>2</sub> emissions from combustion. The basic physics and petrophysics relevant to Hydrogen are presented, including the descriptions of the Hydrogen gas, liquid and supercritical phases (scH<sub>2</sub>). The hydrogen supercritical phase is a material state in which there is no surface tension, somewhat like a gaseous state. After this review, and review of geophysical methods relevant to Helium monitoring and subsurface accounting, Helium (He) reservoir and case studies are reviewed with respect to monitoring technologies that could be applied to Hydrogen subsurface monitoring. Successful methods of geophysical monitoring of other injection sites, where relevant, will also be reviewed and summarized. This presentation is then extended to a description of the physical properties of Hydrogen stability ranges, and moduli. These are then related to geophysical methods that have been used successfully to monitor, verify, and account for subsurface Hydrogen in geophysical studies. Potentially useful geophysical monitoring technologies reviewed include microgravity, electromagnetic, satellite-based surface deformation monitoring, 3D and 4D reflection seismic based methods, vertical seismic profiling (VSP) and micro seismic methods.

***Please RSVP using the registration link on the Geophysical Society of Pittsburgh website at: [www.thegesp.org](http://www.thegesp.org)  
Cost: \$35 Members, \$40 Non-members (\$20 for Students). Meeting Location: 428 Washington Ave, Carnegie, PA 15106  
(412) 276-6600.***



**Biography: William Harbert, Professor of Geophysics,  
University of Pittsburgh**

Dr. William Harbert received his MS in Exploration Geophysics and Ph.D. in Geophysics from Stanford University. He is a life-time member of SEG, a registered professional petroleum geophysicist and member of AAPG and SPE. He has been a DOE ORISE Research Associate and was a Resident Institute Fellow of the NETL-Institute for Advanced Energy Solution (IAES). He was a member of the Scientific Advisory Board for the In Salah CO<sub>2</sub> Injection Project facilitated by British Petroleum and was also on the Altarock Project Review Board, which focused on an enhanced geothermal power project funded by the United States Department of Energy.

***Thursday September 15th, 2022***

***Agenda:***

***11:15 Door Open/Social Half Hour***

***11:45 pm Lunch Buffet***

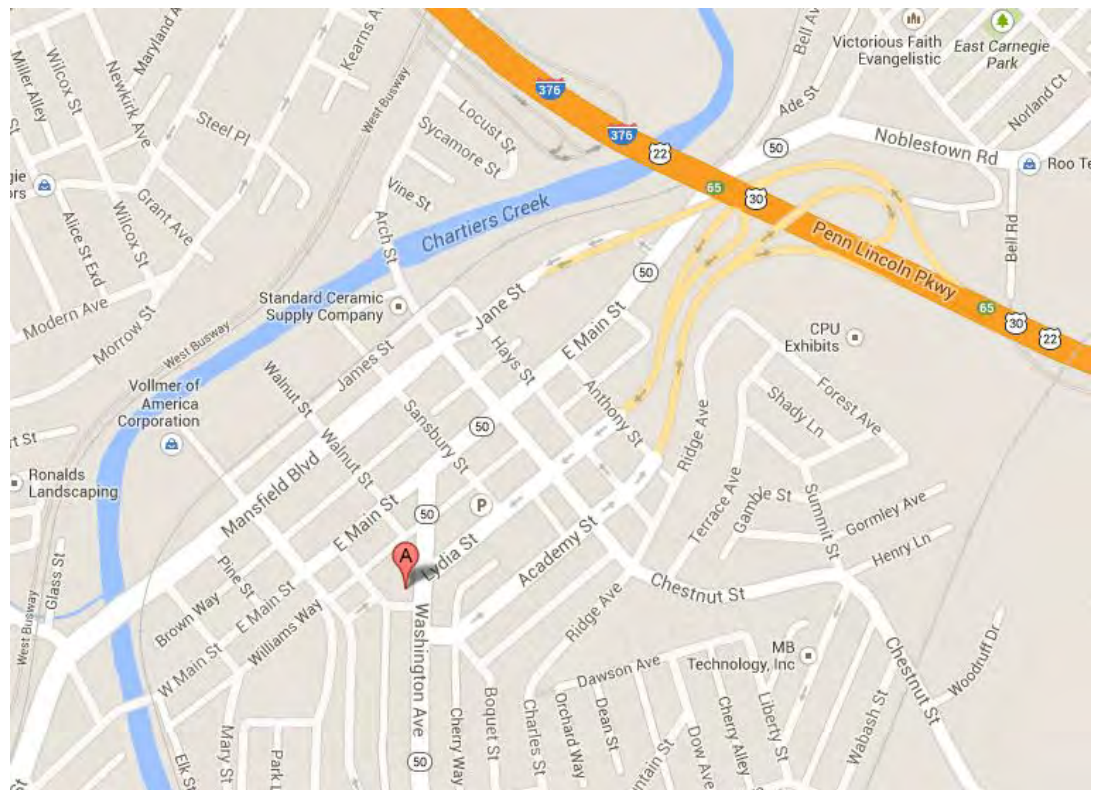
***12:00 pm Lecture***

***To receive a CEU certificate from this lecture please contact Bill Harbert***

***This months lecture will be held at :***

**Cefalo's**

**Banquet & Event Center  
428 Washington Ave.  
Carnegie, PA 15106  
412.276.6600**





# *Sponsorship Opportunities*



The Geophysical Society of Pittsburgh offers sponsorship opportunities. The Society usually holds monthly luncheon meetings from September to May at various locations around the Pittsburgh area in addition to the Appalachian Basin Geophysical Symposium and golf outing to be held in June.

Since our inception in 2010 our meetings have provided exceptional technical presentations in the field of geophysics. They also provide outstanding networking opportunities for industry professionals working in the Appalachian basin.

Your generous donations will help in the following ways: 1) helping to bring in distinguished lecturers; 2) offsetting part of the cost of the monthly meeting venue; and 3) enabling a Scholarship Program for future Geophysicists to be awarded each year to an outstanding student enrolled in geophysics classes at one of our local universities.

We offer corporate sponsorships at the Gold(\$1000), Silver (\$750) and Bronze (\$500) levels. Your company logo will be proudly displayed during the social hour of each meeting as well as on our website and on meeting announcements. Please note that a secure payment link is now available on our website for your added enrollment convenience.

Please click [HERE](#) to download more information, then return to this page to enroll as a sponsor.

~~~~~

## 2022-2023 GSP OFFICERS

*President:* Scott Gorham

*Vice President:* Jianli Yang

*Treasurer:* Joel Starr

*Secretary:* Bill Harbert

Independent  
Consultant

Seneca Resources

Independent  
Consultant

Univ. of Pittsburgh



~~~~~

**Your Dues and Sponsorship in Geophysical Society of Pittsburgh go toward:**

- *Outstanding Monthly Lecture Series*
- *SEG Distinguished Lecturers*
- *Annual Scholarship Awards*
- *Annual Golf Outing*
- *Short Courses*

Please contact Scott Gorham, Jianli Yang, Joel Starr, or Bill Harbert for Sponsorship Opportunities.

~~~~~