

SPE California Sustainability Study Group

Invites you to join the online webinar/discussion about

Geological Processes for CO₂ Removal from Air and Permanent Storage at the Scale of Gigatons per Year

Thursday June 25 at 12:00pm (noon) Pacific Time

Dr. Peter Kelemen of Columbia University.

An event registration link will be established shortly—[check here for status](#). For more information on the SPE California Sustainability Study Group, [visit our website](#)

Dr. Kelemen will present an overview of his research on geologic capture and storage of CO₂ via carbon mineralization. Study of these natural processes has relevance to engineered CO₂ removal from air (CDR, aka Direct Air Capture, DAC) and permanent storage of CO₂, stimulation of geothermal reservoirs, in situ mining, and extraction of hydrocarbon resources from tight formations. New technologies are being developed that may lead to practical, economical storage of CO₂ in subsurface formations and, potentially, in surface facilities (for more information see [brief article/video on Dr. Kelemen's Oman Drilling project](#), Chapter 6 in the National Academies report on Negative Emissions Technologies (free PDF at <https://www.nap.edu/catalog/25259/negative-emissions-technologies-and-reliable-sequestration-a-research-agenda>) and 2020 papers in press by McQueen et al. in



Nature Communications and Kelemen et al. in Chemical Geology. The presentation will explain the implications of this research for carbon capture and storage technology, and the speaker looks forward to a discussion with petroleum engineers on the practical application for de-carbonization of oil and gas production.

Peter Kelemen is the Arthur D. Storke Professor in the Department of Earth & Environmental Sciences at Columbia University. He is a member of the National Academy of Sciences, and a Fellow of the American Geophysical Union, the Mineralogical Society of America, and the Geochemical Society. He studies the chemical and physical processes of reaction between fluids and rocks. He has worked on the genesis and evolution of oceanic and continental crust, chemical cycles in subduction zones, and new mechanisms for earthquake initiation. His primary focus now is on geologic capture and storage of CO₂ (CCS), and reaction-driven cracking processes in natural and engineered settings, with application to CCS, geothermal power generation, hydrocarbon extraction, and in situ mining. He teaches a popular course on “Earth Resources for Sustainable Development” at Columbia, as well as courses and seminars on petrology, geochemistry, and geodynamics. Kelemen was a founding partner of Dihedral Exploration (1980-1992), consultants specializing in exploration for mineral deposits in steep terrain, with contracts in Canada, Alaska and Greenland. Research and climbing have taken him to Peru, India, Oman, the Aleutian Islands, 7,500 meters above sea level in Pakistan, and 5,500 meters below sea level along the Mid-Atlantic Ridge. He received his AB from Dartmouth College in 1980, and his PhD from the University of Washington in 1987. He spent 16 years at the Woods Hole Oceanographic Institution before moving to Columbia’s Lamont Doherty Earth Observatory in 2004.