

# CRC ENERGY TRANSITION LECTURE SERIES 2024

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## Hydrogen Geoscience for Energy and Climate

Hydrogen is anticipated to play an important role in reducing the carbon emissions from the nation's energy portfolio. In California, and across the US, new hydrogen hubs are investing in low-carbon hydrogen manufacturing and the expansion of hydrogen energy, manufacturing, and transportation applications. The effective development of a hydrogen economy requires significant growth in our understanding of the biologic, geologic, and atmospheric processes that control the formation, transport, and consumption of hydrogen. For example, hydrogen could be used for the seasonal storage of energy from renewable sources, but only underground geologic formations can store hydrogen at a sufficient scale. Moreover, serpentinization reactions in the Earth's crust are a major source of carbon-free hydrogen that is attracting attention as a new energy resource. This talk will give an overview of the hydrogen geoscience research that is required to understand and enable the potential for hydrogen in the energy transition.

### ABOUT THE SPEAKER



Dr. Benjamin Gilbert is a Senior Staff Scientist at Lawrence Berkeley National Laboratory (LBNL) and Adjunct Associate Professor in the Department of Earth and Planetary Science at the University of California, Berkeley. At LBNL Dr. Gilbert directs the Fundamental Geoscience group, a multi-investigator project funded by the DOE Basic Energy Science studying the properties of sedimentary systems. Through campus, he leads an NSF project Four Networks for Geologic Hydrogen Storage. Dr. Gilbert is a field and laboratory geoscientist with expertise in terrestrial biogeochemistry and subsurface fluid-rock reactions. Dr. Gilbert obtained a B.A. in Natural Sciences (Physics) from Cambridge University in 1994 and a Ph.D. from the École Polytechnique Fédérale de Lausanne (EPFL) in 2000. In 2010, he was the recipient of the Mineralogical Society of America - Young Investigator Award. He joined LBNL in 2004 and was promoted to Senior Scientist in 2017. From 2015-19 he held an invited professorship position at the Institut des Sciences de la Terre at the University of Grenoble.

**Benjamin Gilbert, PhD**  
*Lawrence Berkeley National  
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**MARCH 13, 2024 | 4 pm to 5 pm | Room: RNEC 105**

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