

EEE Research Seminar

Date: April 23, 2024, at 10:30AM

Location: POTR 234 (Fu Room)

Sally M. Benson, Ph.D.**Precourt Family Professor of
Energy Science and Engineering**
Stanford University**How Important is Carbon Capture and Storage for A Net-Zero Energy System and Can We Count on it Working?****Abstract**

The first part of this talk will discuss the importance of carbon capture and storage from industrial and power sources in getting to a net-zero emissions energy systems. Quantitative model-based examples of the role it will play are provided for California, the U.S., and the world. In the second part of this talk, recent scientific advances in CO₂ storage science and engineering are provided that demonstrate the potential for safe, secure, and permanent storage of large volumes of CO₂ in the subsurface. Examples include the use of machine-learning approaches for probabilistic predictions of the fate and transport of CO₂ in the subsurface, laboratory experiments for observing sub-mm scale behavior of CO₂ in reservoir rocks, and theoretical studies of the long-term retention of CO₂ in the subsurface.

Bio

Sally M. Benson, who joined Stanford University in 2007, is the Precourt Family Professor in the Department of Energy Science and Engineering in the Stanford Doerr School of Sustainability. She studies technologies and pathways to reducing greenhouse gas emissions including geologic storage of CO₂ in deep underground formations and energy systems analysis for a low-carbon future. From 2021 to 2023 she was on leave from the University to serve as the Energy Division Director and Chief Strategist for the Energy Transition at the White House Office of Science and Technology Policy. Prior to this, she served as the Co-Director of the Stanford Center for Carbon Storage and the Stanford Carbon Removal Initiative. From 2013 to 2020, she served as the Director and Co-Director of the Precourt Institute for Energy. She also served as the Director of the Global Climate and Energy Project from 2009 to 2019. Prior to joining Stanford, Benson was Division Director for Earth Sciences, Associate Laboratory Director for Energy Sciences and Deputy Director at LBNL. In 2023 she was elected to the American Academy of Arts and Sciences. Professor Benson currently is a member of the Breakthrough Energy Innovation Council and a Board Member of the Global Carbon Capture and Storage Institute.