Stanford | Center for Carbon Storage

Carbon Capture, Utilization, and Storage is a key technology for achieving net-zero greenhouse gas emissions. The Stanford Center for Carbon Storage (SCCS) uses a multidisciplinary approach to address critical questions related to flow physics, monitoring, geochemistry, geomechanics and simulation of the transport and fate of CO_2 stored in partially- to fully-depleted oil & gas fields and saline reservoirs.

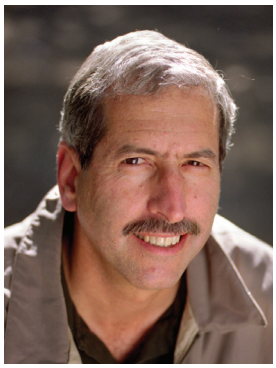
Membership Benefits include:

- **Access** to cutting edge research conducted by Stanford faculty, post docs, and PhD students
- **Invitations** to Precourt Institute for Energy and Stanford University events
- **Annual Affiliates Meeting:** 2021 virtual meeting scheduled for November 2, 9 & 16
- **Webinars** held ~monthly during academic year

Regional Analysis	Pore to Core Scale Analysis	Modeling & Simulation	Technoeconomics & Policy Analysis
• Development of CO_2 & H_2 site selection and ranking criteria	• Experimental studies of pore-to-core scale flow and transport of CO_2	• Advanced reservoir modeling, including coupled flow, geomechanics and geochemical simulation	• Analysis of new technologies (e.g. BECCS and DAC) and effect on CCS expansion and scaleup
• Assessment of CCS opportunity in California	• Geochemical reactions between CO_2, rocks, fluids and organic matter	• Modeling of injection strategies to optimize pore space usage	• Capacity expansion models for integrating power generation with CCS into the electrical grid
• Assessment of CO_2 storage issues in soft sediments of the US GOM	• Laboratory tests of controls on residual trapping	• Development of deep-learning modeling capabilities for CCS	• Lifecycle assessment of GHG emissions
• Assessment of H_2 storage criteria and opportunities	• Pilot tests of enhanced pore space utilization, trapping, and mobility control	• Inverse modeling to optimize monitoring plans, identify leaks, and track CO_2 plumes	
	• Seal integrity analysis		

Anthony Kovscek is a Professor in the Department of Energy Resources Engineering and expert on the multiphase flow of oil, water and gas in porous media at length scales that vary from the pore to the laboratory to the reservoir.

Lou Durlofsky is a professor in the Department of Energy Resources Engineering. His research focuses on modeling, optimization, and history matching of subsurface flow processes (oil/gas production and CO_2 storage) and on the development of fast surrogate models to enable these computations.



Mark Zoback is the Benjamin M. Page Professor of Geophysics (Emeritus). He is an acclaimed expert on reservoir geomechanics and induced seismicity. He is the author/co-author of more than 300 scientific papers and author of two books.

Sarah Saltzer is the Managing Director of the Stanford Center for Carbon Storage. She has 25 years of experience at Chevron Corporation, where she held a series of scientific, managerial and executive roles.

Stanford Faculty involved in research supported by the center:

Geochemistry and Carbon Capture

Kate Maher
Bill Mitch

Systems and Economic Analysis

Inês M.L. Azevedo
Sally Benson
Adam Brandt
John Weyant

Geomechanics and Geophysics

Biondo Biondi
Tiziana Vanorio
Mark Zoback

Reservoir Engineering & Uncertainty Quantification

Jef Caers
Lou Durlofsky
Anthony Kovscek
Hamdi Tchelepi

> "Expanding Carbon Capture and Storage technology to a Gt-CO_2/year scale will require significantly more research to provide assurances that selected sides will be able to secure CO_2 safely and effectively."
>
> –Sally M. Benson
> Office of Science and Technology Policy
> (co-director of SCCS, on leave from Stanford University)

The Stanford Center for Carbon Storage is a membership-based industrial affiliates program. Membership is available to all interested companies, government agencies, and non-profits. Please contact Sarah Saltzer, Managing Director of SCCS for more information. (sarah.saltzer@stanford.edu)