

SPRING 2024 SEMINAR SERIES

energyXchange

a seminar series
on energy science
and technology



Eugene Morgan

*Associate Head for Undergraduate Education
Undergraduate Program Chair of Energy Engineering
Associate Teaching Professor,
John and Willie Leone Family
Department of Energy and Mineral Engineering*

CO₂-SMART: A New Industry-University Collaborative Research Center for CO₂ Storage Modeling, Monitoring, Analytics, and Risk Reduction Technologies

Geologic CO₂ storage (GCS) is a critical tool in addressing climate change because it is one of the most viable options for reducing CO₂ emissions to the atmosphere. The successful implementation of GCS hinges on scientific and technological advances in multi-physics flow modeling, subsurface monitoring and data analytics, and risk assessment and mitigation strategies. This Industry-University Collaborative Research Center for geologic CO₂ Storage Modeling, Monitoring, Analytics, and Risk Reduction Technologies (CO₂-SMART) aims to create a multidisciplinary synergistic research program to accelerate safe and cost-effective deployment of commercial-scale GCS through industry-driven research projects and a well-integrated workforce development plan. The center, led by USC, with a partner site at Penn State, will focus on advancing the current understanding of the complex CO₂-brine-rock interactions in storage formations and developing modern AI-enriched GCS technologies to enable safe, efficient, and cost-effective GCS implementation. The center's research will be performed collaboratively between USC's team of experts in engineering, computing, and related fields, and Penn State's expertise in geosciences, energy policy, and economics. The center's work will be guided by an Industry Advisory Board (IAB) who will bring together key players in industry, government, and academia. This will set CO₂-SMART apart from existing consortia and prepare the center for contributing to successful large-scale deployment of GCS.

FEBRUARY 8

4 p.m.* – 5 p.m.

Coffee • Snacks • Connections

EMS ENERGY INSTITUTE C213 Coal Utilization Laboratory



EMS Energy Institute

* Parking is available at the Institute at 4 p.m.

www.energy.psu.edu



PennState
College of Earth
and Mineral Sciences

Earth and Mineral Sciences
Energy Institute

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FEBRUARY 8

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Analytics, and Risk Reduction Technologies*

FEBRUARY 22

TBD

TBD

TBD

MARCH 14

Erica Smithwick

*Director of the Earth and Environmental Systems Institute
and Distinguished Professor of Geography
Penn State's Climate Consortium: Partnerships for People
and the Planet*

MARCH 28

Sarma Pisupati

*Professor of Energy and Mineral Engineering, Chemical
Engineering, and Director of the Center for Critical Minerals
(C²M)
Mineral Security Challenges in Meeting the Goal of Net-
Zero Carbon Emissions by 2050*

APRIL 18

Thandazile Moyo

*Assistant Professor of Energy and Mineral Engineering
John and Willie Leone Family Department of Energy and
Mineral Engineering*

TBD

MAY 9

Joshua Robinson

*Associate Dean for Graduate Education and Research
(Acting)
Silicon Carbide: The Critical Semiconductor for the Energy
Transition*

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4 p.m.* – 5 p.m.

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