

THE *Core* SAMPLE

Internal Newsletter of the School of Energy Resources



September | 2022

ARCH RESOURCES SUPPORTS UW SCHOOL OF ENERGY RESOURCES WITH \$500,000 GIFT

Arch Resources Inc. has committed a \$500,000 gift to the University of Wyoming School of Energy Resources (SER) to advance the school's globally recognized carbon management initiatives as well as its ongoing efforts to drive innovative land reclamation practices.



The gift will augment the Arch Resources Technology and Sustainability Fund, an existing endowment the company first established more than a decade ago and that was matched by the state at that time. The gift reflects Arch's deep and long-standing commitment to Wyoming and to the highest principles of sustainability and good corporate citizenship.

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UW SCHOOL OF ENERGY RESOURCES, WOLD FOUNDATION HOST SYMPOSIUM ON WYOMING'S ENERGY FUTURE

The University of Wyoming School of Energy Resources (SER) and the Wold Foundation hosted a joint symposium Thursday, Sept. 15, that focused on the state's energy future.

Examining different topics from an industry perspective as well as an academic perspective, the in-person forum featured leading experts across the spectrum of energy development and various state stakeholders to collaborate and learn about what comes next for energy in Wyoming, as well as a poster session with UW graduate students showcasing their energy-related research.

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HIGHLIGHTS

Research Centers of Excellence

• *The Department of Energy has released multiple Funding Opportunity Announcements. Researchers in all of the Centers of Excellence will be working on putting together proposals for the various funding opportunities in hydrogen, direct air capture, and carbon capture and storage.*



• Dr. Kam Ng and SER Research Scientist ChooiKim Lau in the *Center for Carbon Capture and Conversion* will be presenting on the coal-derived building materials at the AIA Annual Meeting in Sheridan, Wyo. on October 7.

• The CORE-CM annual forum in the GGRB-WRB will take place on October 19-20. Please register to attend if you are planning on being there! [Register Here](#)

• Davin Bagdonas in the *Center for Economic Geology Research* recently published an article, "On a Unified Core Characterization Methodology to Support the Systematic Assessment of Rare Earth Elements and Critical Minerals Bearing Unconventional Carbon Ores and Sedimentary Strata" in *Minerals*. Profile coming soon!



***More details in features

To submit news and updates email: Christine.reed@uwyo.edu



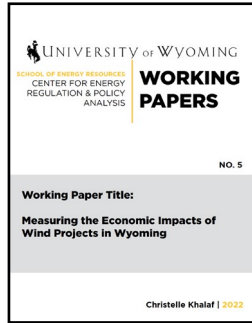
School of Energy Resources

WORKING PAPER ON ECONOMIC IMPACTS IF WIND PROJECTS IN WYOMING RELEASED THROUGH SCHOOL OF ENERGY RESOURCES

The UW School of Energy Resources (SER) and the Center for Business and Economic Analysis (CBEA) released a working paper measuring the economic impacts of future wind energy deployment scenarios in Wyoming, including potential income from federal revenue-sharing if such a provision were adapted for renewables. In addition, the working paper investigates the permitting process of wind projects and notes the significantly increased timeline when siting on federal land.

The study was led by **Christelle Khalaf**, the associate director of the CBEA, and was funded through SER's Center for Energy Regulation and Policy Analysis (CERPA).

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UW HOSTS ARTICULATION SUMMIT WITH STATE COMMUNITY COLLEGES

The University of Wyoming recently hosted the Wyoming Articulation Summit — an annual statewide gathering of higher education administrators, faculty, staff and other professionals to discuss transfer articulation efforts, impacts and plans.

After a two-year, in-person disruption, the event was held in a hybrid format, with participants attending both in person in the UW School of Energy Resources' (SER) Energy Innovation Center and online.

The latest summit began with a welcome address from SER Executive Director **Holly Krutka**, followed by comments from UW President **Ed Seidel** and **Ben Moritz**, the Wyoming Community College Commission deputy director.

Raymonda Burgman Gallegos, vice president of programs and services for the Western Interstate Commission for Higher Education (WICHE), gave the keynote address.

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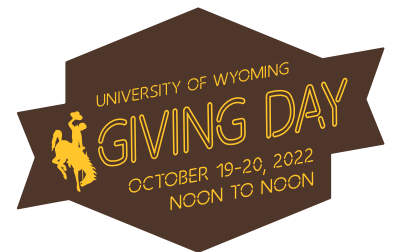
(Pictured top to bottom) Dr. Holly Krutka, UW President Ed Seidel and Ben Moritz, Raymonda Burgman

HIGHLIGHTS CONT.

- Patrick O'Toole in the *3D Visualization Center* is leaving to pursue new opportunities. His last day is Oct. 5.

Academics

- Tara Righetti will be giving a talk, "The Challenges of Energy Transitions in Mining Basins: a State of the Research," at the Arenberg Creative Mine in France on October 14.
- UW Giving Day 2022 is October 19-20 from noon to noon! Please plan on supporting the SER academic program through multiple funds that provide our students experiential learning opportunities!



General Announcements

- The Annual Report for Fiscal Year 2022 is complete! You can view [download the full report](#) from the SER website.
- The website for the Emerging Energy Markets Analysis (EMA) Initiative is now live! The EMA initiative is a collaboration between MIT Sloan School of Management, UAA: University of Alaska Anchorage, University of Michigan School for Environment and Sustainability, University of Wyoming School of Energy Resources, the Energy Policy Institute and INL to help people and communities make energy choices. [EMA Website](#)
- Don't forget to sign up for the SER Spooky Potluck Social! Bring a treat to share, dress up for the costume competition and experience the haunted 3D cave! [Potluck Sign Up](#)



***More details in features

UW ENERGY LAW AND POLICY IN THE ROCKIES CONFERENCE OCT. 14

The University of Wyoming's annual Landscape Discussion on Energy Law and Policy in the Rockies is returning for an in-person forum Friday, Oct. 14.

In a fireside-style chat — featuring **Gov. Mark Gordon** and U.S. Department of the Interior Deputy Secretary **Tommy Beaudreau** — the pair will examine federal energy development in Wyoming. Retired Wyoming Supreme Court Chief Justice **Marilyn Kite** will moderate the discussion.

Other speakers include a keynote address from **Wahleah Johns**, director of the U.S. Department of Energy Office of Indian Energy Policy and Programs; **Phil Lowe**, from the Interior Department's Office of the Solicitor; state **Rep. Affie Ellis**; and prominent attorneys and legal energy scholars from throughout the state and region.

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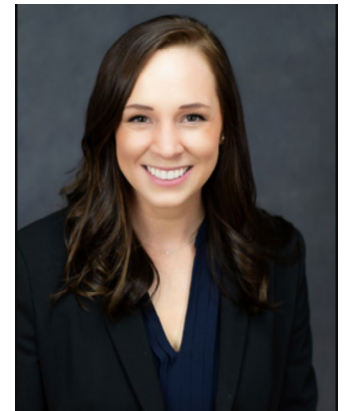
NEW FACES AT THE SCHOOL OF ENERGY RESOURCES

THE SCHOOL OF ENERGY RESOURCES WELCOMES ATTORNEY MADELEINE LEWIS TO RESEARCH TEAM

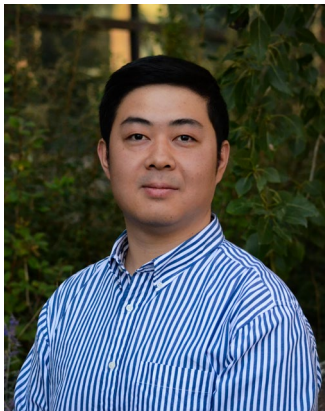
The School of Energy Resources (SER) is pleased to welcome **Madeleine Lewis** to the research team. A licensed attorney in Wyoming, Lewis will serve as a policy research scientist to both the Center for Economic Geology Research (CEGR) and the Center for Energy Regulation and Policy Analysis (CERPA).

In her new role, Lewis will conduct policy research and public outreach under the auspices of the Department of Energy (DOE) funded Plains CO₂ Reduction (PCOR) Partnership, and will also provide analytical support on energy-related social science topics as they related to ongoing research projects within SER, CEGR, and CERPA.

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CENTER FOR ECONOMIC GEOLOGY RESEARCH EXPANDS SUBSURFACE MODELING TEAM WITH TWO NEW ADDITIONS



The School of Energy Resources (SER) is pleased to welcome two new research scientists to the Center for Economic Geology Research (CEGR). With backgrounds in petroleum engineering, researchers **Tao Bai** of Guang'an, China, and **Lu Lee** of Taipei, Taiwan, round out the geomodelling team in the center.

Tasked with providing detailed mechanical modeling of subsurface reservoirs and flow behavior in rock formations, Bai and Lee will work under the supervision of CEGR Project Manager, **John Jiao**. Primarily exploring the potential of geologic storage for carbon dioxide and hydrogen, and overseeing pressure management, their presence at SER will help speed up the projects that are currently underway, and will contribute to the success of new projects that are forthcoming.

A recent graduate of the University of Wyoming, Bai earned his Ph.D. in Petroleum Engineering under the tutelage of **Dr. Pejman Tahmasebi** in the Center of Innovation for Flow Through Porous Media (COIFPM) where he excelled in software programming and geologic modeling. The lead author on a paper published in *Geophysical Journal International* with Pejman, Bai developed a machine learning model that improves the accuracy of detecting earthquakes by 14.5 percent compared to the most accurate current existing model.

Lee earned his bachelor's degree in Petroleum Engineering from the University of Houston before completing his doctoral degree in Energy and Mineral Engineering from Penn State University. Immediately following his Ph.D., he worked as a postdoctoral researcher for the department where he planned and executed research projects related to geomechanical applications in both petroleum and geothermal wells.

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SCHOOL OF ENERGY RESOURCES ANNOUNCES PROPOSAL WINNERS FOR THE MOWRY SHALE PROJECT

The School of Energy Resources is pleased to announce the selected UW proposals that will be funded in phase I of the Mowry Shale Project.

In order to define research gaps, develop faculty expertise, and create a workforce of graduate students, SER requested UW faculty submit proposals that addressed two areas of interest; the first, Shale Fundamental Studies, is aimed at advancing physics-based modeling and experimentation, and the second, Machine Learning and Artificial Intelligence, supports data driven approaches to draw meaningful insights from large data sets.

Six research proposals were chosen to receive seed funding under the request for proposals. Selected projects include:

- **Kam Ng**, an associate professor in civil and architectural engineering, leads the project, titled “Fundamental study through Experimental Investigation to Advance the Geomechanical Understanding of the Mowry Shale,” along with **Vladimir Alvarado**, a professor of chemical and petroleum engineering, and SER Research Scientist **Grant Copeland**.
- Alvarado leads a second project with **Saman Aryana**, an associate professor in chemical engineering and the Occidental Chair in Energy and Environmental Technologies, and **Fred McLaughlin**, the director of SER’s Center for Economic Geology Research (CEGR), titled, “Does shale stimulation improve or hamper reservoir productivity?”
- **Soheil Saraji**, an associate professor in petroleum engineering, leads the proposal, titled “Sweet Spot Identification in the Mowry Formation: A Synergistic Laboratory Characterization and Machine Learning Framework.”
- **Vamegh Rasouli**, professor and department head and the LeNorman Endowed Leadership Chair in Petroleum Engineering and **Morteza Dejam**, an associate professor of petroleum engineering, lead the proposals entitled, “Design and Fabrication of a Cylindrical True Triaxial (CTT) Experimental Set-up for Geomechanical Characterization of Mowry Shale in Wyoming.”
- **Xiang Zhang**, an assistant professor in mechanical engineering, leads the proposal, titled “Interaction between Bentonites layers and hydraulic fractures: toward modeling and design of multistage hydraulic fractures for reduced uncertainty and increased productivity in Mowry Petroleum System.”
- The SER team of research scientists **Matt Johnson**, **Grant Copeland**, and **Yuri Ganshin** will lead the project, titled, “Defining Potential of the Mowry Shale in Wyoming’s Laramide Basins.” CEGR Director **Fred McLaughlin** will also contribute to the project. The SER team will also serve as the data repository and central data collection point for all of the projects.

IMPORTANT DATES

- **Fall Distinguished Speaker Series Presentation - Prof. Hong Yang**
October 5, 2022
- **Landscape Discussion on Energy Law & Policy in the Rockies Conference**
October 14, 2022
- **Wyoming Rocks! Geology Museum Event**
October 15, 2022
- **Lunch Speaker | ChE Seminar - Dr. Alex Hansen-Norwegian University of Science**
October 17, 2022
- **Giving Day**
October 19-20, 2022
- **CORE-CM GGRB-WRB Annual Forum - Rock Springs**
October 19-20, 2022
- **Fall Distinguished Speaker Series Presentation - Patrick McCormick**
October 24, 2022
- **SER Spooky Halloween Potluck Social**
October 31, 2022
- **ERC Directors Reports Due**
November 4, 2022
- **Fall Distinguished Speaker Series Presentation - Michael Noonan**
November 9, 2022
- **Energy Resources Council Meeting**
November 17-18, 2022
- **Thanksgiving Break**
November 24-25, 2022

I MAKE BAD SCIENCE JOKES
BECAUSE ALL THE GOOD ONES....

