



# MICKEY LELAND ENERGY FELLOWSHIP PROGRAM 2021 TECHNICAL FORUM

## MONDAY, AUGUST 9TH

11:00 AM - 11:10 AM

### OPENING REMARKS

**Alan Perry**

*Director*

Office of Workforce Management and Administration  
Office of Fossil Energy and Carbon Management

11:10 AM - 11:30 AM

### WELCOME

**Brian Anderson, Ph.D.**

*Director*

National Energy Technology Laboratory (NETL)

11:30 AM - 12:00 PM

### KEYNOTE REMARKS

**Captain (Ret.) Ernest R. Hunter Sr.**

*MLEF Co-Founder*

**Reginal "Reggie" Spiller**

*MLEF Co-Founder*

12:00 PM - 12:15 PM

### BREAK

12:15 PM - 1:15 PM

### STUDENT PRESENTATIONS

**Jada Sherman** | NETL - Pittsburgh, PA

*Environmental Cost of Plugging Abandoned Oil and Gas Wells*

**Elijah Johnson** | DOE HQ - Germantown, MD

*Engineering Project Finance*

**Tiernan Baucom** | NETL - Pittsburgh, PA

*Screening and Synthesis of MOF Materials for 2D Membranes*

1:15 PM - 1:45 PM

### BREAK

1:45 PM - 3:05 PM

### STUDENT PRESENTATIONS

**Rachel Fan** | NETL - Pittsburgh, PA

*Quantifying and Characterizing Variability of Wind and Solar Energy Generation*

**Rodrigo Carrizales** | DOE HQ - Germantown, MD

*Analysis of Gas Hydrates Systems for AI/ML Modeling and Simulations*

**Alexis Parker** | NETL - Morgantown, WV

*Digital Core Characterization and Carbon Storage*

**Gavin Wahl** | NETL - Morgantown, WV

*Enhancing Thermal Control Capabilities for the NETL Micro CT Project*

**Jonathan Roman** | PNNL - Richland, WA

*Data analysis for Extreme Environment Materials*

3:05 PM - 3:15 PM

### BREAK

3:15 PM - 4:20 PM

### STUDENT PRESENTATIONS

**Jesus J. Mata** | NETL - Morgantown, WV

*Vibrational Analysis and Mechanical Design of 20kW SOFC/GT Hybrid System*

**Ann Marie Tirado Padilla** | NETL - Morgantown, WV

*Thermal Energy Storage Model*

**Cory A. Toribio** | NETL - Morgantown, WV

*Model Development of Electric Energy Storage System for NETL's Hybrid Performance Facility*

**Ariztbe Valladolid** | NETL - Morgantown, WV

*Mechanical Design of 20kW SOFC/GT Hybrid System*

4:20 PM

### CLOSING & ANNOUNCEMENTS

All times are shown in EDT



# MICKEY LELAND ENERGY FELLOWSHIP PROGRAM

## 2021 TECHNICAL FORUM

### TUESDAY, AUGUST 10TH

11:30 AM - 12:50 PM

#### STUDENT PRESENTATIONS

**Eric G. Barnfather Jr.** | SPR- New Orleans, LA  
*Document Control System Modernization*

**Shawn L. Butler Jr.** | DOE HQ - Germantown, MD  
*Financial Modeling of Fossil Energy CCS Power Projects*

**Britley Jones** | NETL - Pittsburgh, PA  
*FGD Effluent Treatment Modeling and Speciation Analysis Using Aqueous Chemistry Software*

**Brady Spears** | NETL - Albany, OR  
*Machine Learning Image Analytics to Identify Oil and Gas Infrastructure*

**Kiersten Dinda** | DOE HQ - Germantown, MD  
*Standardize Carbon Utilization Projects and Findings*

12:50 PM - 1:10 PM

#### BREAK

1:10 PM - 2:15 PM

#### STUDENT PRESENTATIONS

**Justin Finkley** | NETL - Albany, OR  
*Data Analytics for Materials Property Prediction in Extreme Environments*

**Hannah Grace Bella** | DOE HQ - Germantown, MD  
*Technoeconomic Analysis of Production of Low-Carbon Hydrogen using the Gasification Process Coupled with CO<sub>2</sub> Capture and Storage*

**Madison Fischman** | DOE HQ - Germantown, MD  
*Analysis of Reversible Solid Oxide Fuel Cells and Their Marketability*

**Diana Lee Díaz Guzmán** | NETL - Pittsburgh, PA  
*HTHP Density and Viscosity Modeling of Rocket Propellants*

2:15 PM - 2:25 PM

#### BREAK

2:25 PM - 3:45 PM

#### STUDENT PRESENTATIONS

**Nicholas Messina** | NETL - Morgantown, WV  
*CO<sub>2</sub> Pipeline Infrastructure*

**Amy Kou** | NETL - Albany, OR  
*Developing an Online Geospatial dashboard to Explore Trends in Rare Earth Element (REE) and Critical Mineral (CM) Data*

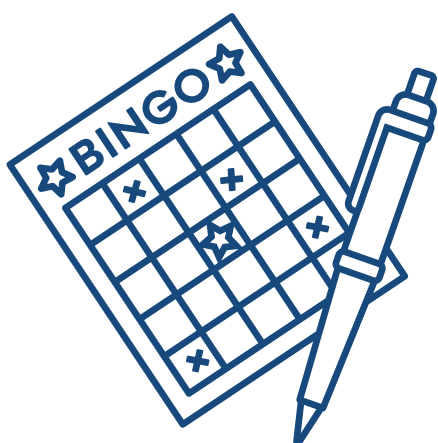
**Jane Cloninger** | NETL - Pittsburgh, PA  
*Resource Map for Modular Co-Gasification of Coal Waste, Biomass and Other Waste Materials*

**Zachary Medley** | DOE HQ - Germantown, MD  
*Hybrid Power Plant with Hydrogen Production and Storage*

**Meredith Basta** | LANL - Los Alamos, NM  
*Business Development of Rare Earth Metal Technology and Clean Energy*

3:45 PM

#### CLOSING & ANNOUNCEMENTS



## Join us today for virtual bingo at 4:00 PM

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# MICKEY LELAND ENERGY FELLOWSHIP PROGRAM 2021 TECHNICAL FORUM

## WEDNESDAY, AUGUST 11TH

11:30 AM - 12:35 PM

### STUDENT PRESENTATIONS

**Brendan Canterbury** | DOE HQ - Washington, D.C.

*Biomining: Sustainable Recovery of Critical Minerals from Coal Waste*

**Luke Bartol** | DOE HQ - Washington, D.C.

*Carbon Mineralization in Mine Waste Products as a CO<sub>2</sub> Sequestration Technique*

**Daniella Cimadomo** | NETL - Morgantown, WV

*Petrophysical Rock Core Characterization*

**Harleen Kaur** | NETL - Morgantown, WV

*Database Creation and Prediction of Microwave Interactions by Machine Learning*

12:35 PM - 12:50 PM

### BREAK

12:50 PM - 2:00 PM

### ALUMNI PANEL

**Chinazor S. Azubike**

*MLEF Class 2012*

**Arnel Garcesa**

*MLEF Class 2017*

**Samantha Martinez**

*MLEF Class 2015*

**Madison Wenzlick**

*MLEF Class 2017*

2:00 PM - 2:10 PM

### BREAK

2:10 PM - 3:00 PM

### STUDENT PRESENTATIONS

**Kayla Ghezzi** | NETL - Pittsburgh, PA

*Data Mining of Plastic Upcycling*

**Eduardo García** | SPR - New Orleans, LA

*Protecting Our Pumps with Net Positive Suction Head Management*

**Genevieve Brooks** | NETL - Pittsburgh, PA

*Fourier Transform Infrared (FTIR) Quantitative Mineralogical Analysis*

3:00 PM - 3:10 PM

### BREAK

3:10 PM - 4:00 PM

### STUDENT PRESENTATIONS

**Theo Edwards** | NETL - Morgantown, WV

*Solvent and Coatings Interactions in Single Mode Microwave Reactors*

**Bryce Elizabeth Yahn** | NETL - Albany, OR

*Topic Modeling of Energy Storage Literature*

**Andrew Candia** | NETL - Pittsburgh, PA

*Literature Review of Oxidative Coupling of Methane to other Hydrocarbons*

4:00 PM

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# MICKEY LELAND ENERGY FELLOWSHIP PROGRAM 2021 TECHNICAL FORUM

## THURSDAY, AUGUST 12TH

11:30 AM - 12:50 PM

### STUDENT PRESENTATIONS

**Raquenel Abreu** | NETL - Morgantown, WV

*Analyzing The Chemical Composition and Lithology of The Patterson #5-25 Well*

**Joseph Martini** | NETL - Morgantown, WV

*Optimization Simulation to Improve Drilling Performance*

**Heidy Vega** | NETL - Pittsburgh, PA

*Corrosion Analysis of Natural Gas Pipeline with Optical Fibers*

**Katie Griffith** | NETL - Pittsburgh, PA

*First-Principles Modeling of the Optical Properties of Double Halide Perovskites for Applications as Gas Sensing Materials*

**Laura Schwendeman** | NETL - Pittsburgh, PA

*Machine Learning on Surface Acoustic Wave (SAW) Sensor Data for Enhanced Harsh Environment Gas Detection*

12:50 PM - 1:10 PM

### BREAK

1:10 PM - 2:00 PM

### STUDENT PRESENTATIONS

**Jessee Steele** | LBNL - Berkeley, CA

*Negative Carbon Emissions from Agricultural Soils*

**Annelise Lobo** | NETL - Albany, OR

*Modeling A Fully Insulated MHD Generator*

**Katherine Nie** | NETL - Pittsburgh, PA

*Rotating Detonation Engine Inlet Development and Characterization*

2:00 PM - 2:10 PM

### BREAK

2:10 PM - 3:00 PM

### STUDENT PRESENTATIONS

**Priscilla Melissa Prem** | NETL - Pittsburgh, PA

*Extraction Kinetics of Rare Earth Minerals from Ion-adsorbed Underclays*

**Phillip Agbesi** | NETL - Pittsburgh, PA

*GIS Characterization of Mineral Reactions in Produced Waters: Effects of CO<sub>2</sub> Enhanced Oil Recovery (EOR)*

**Ruben Sanchez** | LLNL - Livermore, CA

*Preliminary Techno Economic Analysis of Indoor CO<sub>2</sub> Capture, Conversion, and Purification*

3:00 PM

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# MICKEY LELAND ENERGY FELLOWSHIP PROGRAM 2021 TECHNICAL FORUM

## FRIDAY, AUGUST 13TH

**11:45 AM - 12:50 PM**

### **STUDENT PRESENTATIONS**

**Jorge Marcelino Hernandez** | LANL - Los Alamos, NM  
*Carbon Dioxide Capture Using Hollow Fiber Membrane*

**Stephanie Huang** | LBNL - Berkeley, CA  
*The Potential of Enhanced Weathering as a Negative Emissions Technology*

**Brendan Hughes** | LBNL - Berkeley, CA  
*Crosswell Electromagnetic Method for Monitoring CO<sub>2</sub> Storage*

**Diana Laura Morales Palma** | LLNL - Livermore, CA  
*Algae Under Attack: Mathematical Modeling of Temporal Population Dynamics between Biofuel-Relevant Microalgae and Predatory Bacteria*

**12:50 PM - 1:00 PM**

### **BREAK**

**1:00 PM - 1:50 PM**

### **STUDENT PRESENTATIONS**

**Linda Anyosa** | NETL - Pittsburgh, PA  
*Southern Great Plains Natural Disasters and Energy Grid*

**Joseph Hayes** | NETL - Pittsburgh, PA  
*Enabling Artificial Intelligence and Machine Learning Efforts in Rare Earth Elements/Critical Minerals Research*

**Fatou Kine Mbaye** | NETL - Morgantown, WV  
*Exploring the Relationships Between Production and Incidents on Oil and Gas Platforms in the Gulf of Mexico*

**1:50 PM - 2:00 PM**

### **BREAK**

**2:00 PM**

### **CLOSING**

**Shuchi Talati, Ph.D.**  
*Chief of Staff*  
Office of Fossil Energy and Carbon Management  
U.S. Department of Energy

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