# Crosscutting, Rare Earth Elements, Gasification Systems, and Transformative Power Generation

## Agenda at a Glance

### TRACK A: MATERIALS

**CROSSCUTTING RESEARCH**

**SESSION A4: Crosscutting Research**

<table>
<thead>
<tr>
<th>Organization</th>
<th>Title</th>
<th>Presenter</th>
<th>Moderator</th>
</tr>
</thead>
<tbody>
<tr>
<td>University of Alabama at Birmingham</td>
<td>Wireless Networked Sensors in Water for Heavy Metal Detection</td>
<td>Steve Kung</td>
<td>Zi-Kui Liu</td>
</tr>
</tbody>
</table>

### TRACK B: WATER MANAGEMENT

**CROSSCUTTING RESEARCH**

**SESSION B6: Energy-Water Nexus**

<table>
<thead>
<tr>
<th>Organization</th>
<th>Title</th>
<th>Presenter</th>
<th>Moderator</th>
</tr>
</thead>
<tbody>
<tr>
<td>University of Alabama at Birmingham</td>
<td>Water Demand Coefficients of Power Generation</td>
<td>Paul Jablonski</td>
<td>Karol Schrems</td>
</tr>
</tbody>
</table>

### TRACK C: RARE EARTH ELEMENTS

**CROSSCUTTING RESEARCH**

**SESSION C4: Transformational Rare Earth Element Separation**

<table>
<thead>
<tr>
<th>Organization</th>
<th>Title</th>
<th>Presenter</th>
<th>Moderator</th>
</tr>
</thead>
<tbody>
<tr>
<td>National Energy Technology Laboratory (NETL)</td>
<td>Rare Earth Elements (REE) from Coal and Coal By-Products</td>
<td>Morgan Summers</td>
<td>Charles Miller</td>
</tr>
</tbody>
</table>

### TRACK D: TRACK D: AIR SEPARATION/OXYGEN PRODUCTION SESSION II

#### SESSION D6: Reactor Engineering Design Session II

<table>
<thead>
<tr>
<th>Presenter</th>
<th>Organization</th>
<th>Title</th>
<th>Moderator</th>
</tr>
</thead>
<tbody>
<tr>
<td>James E. Parks, II</td>
<td>Pacific Northwest National Laboratory (PNNL)</td>
<td>Fast Reactor Engineering Design</td>
<td>Steven Markovich</td>
</tr>
<tr>
<td>Yvon Caro</td>
<td>Idaho National Laboratory (INL)</td>
<td>Advanced Ceramic Seals for Praxair’s Oxygen Pressure Driven Separation</td>
<td>Diane Revay</td>
</tr>
</tbody>
</table>

---

### SESSIONS AT A GLANCE

- **SESSION A4** Crosscutting Research
- **SESSION B4** Energy-Water Nexus
- **SESSION C4** Transformational Rare Earth Element Separation
- **SESSION D4** Air Separation/Oxygen Production Session II

---

### ORGANIZATION

- **University of Alabama at Birmingham**
- **University of California – Los Angeles**
- **University of Kentucky**
- **University of Michigan**
- **University of Virginia**
- **Virginia Tech**
- **Washington University in St. Louis**

---

### PRESENTERS

- **Steve Kung**
- **Zi-Kui Liu**
- **Paul Jablonski**
- **Karol Schrems**
- **Morgan Summers**
- **Charles Miller**
- **Diane Revay**
- **Steven Markovich**

---

### MODERATORS

- **Zi-Kui Liu**
- **Karol Schrems**
- **Charles Miller**
- **Diane Revay**
- **Steven Markovich**

---

### OTHERS

- **University of Alabama at Birmingham**
- **University of California – Los Angeles**
- **University of Michigan**
- **University of Virginia**
- **Virginia Tech**
- **Washington University in St. Louis**

---

### ACKNOWLEDGMENTS

- **Support** from various organizations.

---

### REFERENCES

- [Crosscutting, Rare Earth Elements, Gasification Systems, and Transformative Power Generation](#)

---

### CONTACT INFORMATION

- For more information, contact the organizers at their respective institutions.
AGENDA AT A GLANCE

SESSION A8: Monitoring and Controls

SESSION B8: Creep Fatigue

SESSION C8: Advanced Manufacturing

SESSION A9: Fiber Optic Sensors and Discussion

SESSION B9: Computational Modeling

SESSION C9: Water Management and Discussion

SESSION A10: Optical and Wireless Sensors

SESSION B10: Creep Fatigue and DPE Materials

SESSION C10: Membrane Water Treatment

SESSION A11: wireless Sensors

SESSION B11: Direct Power Extraction (DPE)

SESSION C11: Wastewater Treatment

SESSION A12: Sensors and Controls

SESSION B12: Materials and Direct Power Extraction

SESSION C12: Crosscutting Research

SESSION A13: Materials and Water Management

SESSION B13: Creep Fatigue

SESSION C13: Crosscutting Research