

Center for Advanced  
Separation Technologies

# CAST 2003

## Annual Workshop

November 19-21, 2003  
Embassy Suites Hotel  
Charleston, West Virginia



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For additional information:

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# What is CAST?

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The Center for Advanced Separation Technologies (CAST) was established in 2001 under the auspices of the United States Department of Energy (DOE) to conduct fundamental research in advanced separations. More specifically, the objectives of the center are:

- to create a knowledge base for solid-solid and solid-liquid separation processes as applied to the mining industry, and
- to provide enabling sciences that permit economic recovery of materials that are being lost as waste or already disposed of in waste impoundments.

More recently, research activities have been expanded to address the near-term interests of the U.S. mining industry. CAST research is carried out in the following areas:

- physical separations,
- chemical and biological separations, and
- environmental control.

The center was established as a partnership between the following major coal and minerals research universities: Virginia Tech, West Virginia University, University of Kentucky, Montana Tech, University of Nevada, New Mexico Tech and University of Utah. The center brings together multidisciplinary expertise to solve various problems facing the U.S. mining industry.

The **CAST 2003 Annual Workshop** is being held to present the results of the center's ongoing research, to solicit feedback from industry representatives, and to discuss future industry needs in technology development.

## Contact Information

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### **Charter Universities:**

#### **Virginia Tech**

Roe-Hoan Yoon, Director  
Center for Advanced Separation  
Technologies (CAST)  
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### **Member Universities:**

#### **University of Kentucky**

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#### **Montana Tech**

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#### **University of Nevada-Reno**

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#### **West Virginia University**

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#### **New Mexico Tech**

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#### **University of Utah**

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# Program Overview

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## Wednesday, November 19, 2003

5:00 - 7:00 p.m. Registration (Pre-Conference Area)  
7:00 - 9:00 p.m. Welcoming Reception (Ballroom B)

## Thursday, November 20, 2003

7:00 - 11:30 a.m. Registration (Pre-Conference Area)  
7:00 - Coffee / Continental Breakfast (Pre-Conference Area)  
8:00 - 8:25 a.m. **Welcome**  
8:25 - 9:40 a.m. **Solid-Solid Separation I**  
9:40 - 10:05 a.m. Coffee Break (Pre-Conference Area)  
10:05 - 11:45 a.m. **Solid-Liquid Separation**  
11:45 - 1:30 p.m. Luncheon (Lunch Buffet - Athletic Club)  
1:30 - 3:25 p.m. **Keynote Session**  
3:25 - 3:50 p.m. Coffee / Soda Break (Pre-Conference Area)  
3:50 - 5:30 p.m. **Solid-Solid Separation II**  
5:30 - 7:00 p.m. Industry / University Reception (Ballroom B)

## Friday, November 21, 2003

7:00 - 9:00 a.m. Registration (Pre-Conference Area)  
7:00 - Coffee / Continental Breakfast (Pre-Conference Area)  
8:00 - 9:40 a.m. **Chemical / Biological Extraction**  
9:40 - 10:05 a.m. Coffee Break (Pre-Conference Area)  
10:05 - 11:45 a.m. **Environmental Control**  
11:45 - 12:30 p.m. **Closing / CAST Roadmap**  
12:30 - 2:00 p.m. CAST Business Meeting / Lunch - Officers / Site Coordinators Only

Technical sessions will be held in Salon D.

### CAST 2003 Annual Workshop sponsors:

Powell Construction  
PrepTech Inc.  
Ondeo-Nalco  
Eriez Magnetics  
BGS Inc.

The Daniels Company  
Freedom Chemical  
Precision Testing Laboratories  
Minerals & Coal Technologies  
Sedgman

*If you are interested in becoming a sponsor, please contact Kathryn Dew at [dewk@vt.edu](mailto:dewk@vt.edu)*

# Thursday, November 20

**8:00 - 8:25 a.m.**

**Welcome**

**Welcome:**

Dr. Roe-Hoan Yoon, CAST Director  
Dr. Richard A. Bajura, CAST Co-Director

**Welcoming Address:**

The Honorable Bob Wise, Governor of West Virginia

**8:25 - 9:40 a.m.**

**Solid-Solid Separation I**

**Chair:** Peter Bethell, Arch Coal Inc., Charleston, WV

1. *"Development of Ultrafine Sizing Technologies,"* R. Honaker and A. Das, University of Kentucky, Lexington, KY.
2. *"Evaluation of Coal Cleaning Efficiency Using Density Tracers,"* G. Luttrell and C. Barbee, Virginia Tech, Blacksburg, VA.
3. *"Separation of Small Particles Due to Density Differences in a CFB Riser System,"* E. Johnson, B. Kang, J. Regester and M. Zhang, West Virginia University, Morgantown, WV.

**9:40 - 10:05 a.m.**

**Coffee Break (Pre-Conference Area)**

**10:05 - 11:45 a.m.**

**Solid-Liquid Separation**

**Chair:** Philip Davis, Peabody Energy, St. Louis, MO

1. *"Development of Novel Dewatering Reagents,"* R.-H. Yoon, M. Eraydin, and I. Yildirim, Virginia Tech, Blacksburg, VA.
2. *"New Strategies for Dewatering of Coals,"* M. Seehra, A. Manivannan, M. Bachlechner and A. Kalra, West Virginia University, Morgantown, WV.
3. *"Improving the Centrifugation of Fine Coal,"* T. Burchett, G. Luttrell and R.-H. Yoon, Virginia Tech, Blacksburg, VA.
4. *"Improved Densification of Fine Coal Refuse Slurries,"* B. K. Parekh, D. Patil and R. Honaker, University of Kentucky, Lexington, KY.

**11:45 - 1:30 p.m.**

**Luncheon (Lunch Buffet - Athletic Club)**

**1:30 - 3:25 p.m.**

**Keynote Session**

**Chair:** John Winslow, U.S. Department of Energy, Bruceton, PA

**Keynote Address:** Addresses by Congressional representatives

**Conference Keynote:**

Kenneth E. Markel Jr., Assoc. Director for Major Demonstration Projects, U.S. Department of Energy

**Industry Keynote:**

Robert Gentile, Managing Director, Atlantic Partners  
"Zero Emissions Technologies: The Future Path of Coal"

**Coal/Energy Keynote:**

Frank Burke, Vice President, Research and Development, CONSOL Energy  
"Clean Coal Technology"

**Mineral / Environment Keynote:**

John Marsden, Vice President, Technology and Development, Phelps Dodge Mining Company  
"Technology Developments for the Minerals Industry: Running Fast to Stand Still"

**3:25 - 3:50 p.m. Coffee / Soda Break (Pre-Conference Area)**

**3:50 - 5:30 p.m. Solid-Solid Separation II**

**Chair:** Michael Garska, Imerys Corporation, Sandersville, GA

1. *"Use of a Comprehensive Model to Improve Flotation Performance,"* R.-H. Yoon, I. Sherrell, D.P. Telionis, P.P. Vlachos and M. Brady, Virginia Tech, Blacksburg, VA.
2. *"Column Flotation of Fine Dolomitic Phosphate,"* F. Peng, West Virginia University, Morgantown, WV.
3. *"Dispersion and Flotation of Clays from Potash Ores,"* I. Gundiler, S. Titkov and M. Yekeler, New Mexico Tech, Socorro, NM.
4. *"Flotation Technology for the Trona Industry,"* J. Miller, X. Wang, O. Ozdemir and A.Jain, University of Utah, Salt Lake City, UT.

**5:30 - 7:00 p.m. Industry / University Reception (Ballroom B)**

## **Friday, November 21**

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**8:00 - 9:40 a.m. Chemical / Biological Extraction**

**Chair:** Larry Todd, Phelps Dodge Mining, Safford, AZ

1. *"Novel Bioleaching Technology,"* E. Cho, R. Yang and B.D. Conner, West Virginia University, Morgantown, WV.
2. *"Hydrometallurgical Processing of Chalcopyrite Concentrates,"* M. Misra and M. Fuerstenau, University of Nevada-Reno, Reno, NV.
3. *"Ion Exchange Recovery of Cobalt from Copper Leach Solutions,"* I. Gundiler and M. Hatch, New Mexico Tech, Socorro, NM.
4. *"Simultaneous Electrolysis of Copper and Ferrous Ions,"* C. Young, H.-H. Huang and C. Fabian, Montana Tech, Butte, MT.

**9:40 - 10:05 a.m. Coffee Break (Pre-Conference Area)**

**10:05 - 11:45 a.m. Environmental Control**

**Chair:** Gary Meenan, CONSOL Energy, Pittsburgh, PA

1. *"Pond Reclaim,"* D. Henry, Beard Technologies, Pittsburgh, PA, and H. W. Rimmer, Virginia Tech, Blacksburg, VA.
2. *"Electrochemical Sensors for Monitoring of Heavy Metal Ions in Coal Processing and Utilization,"* A. Manivannan, M. Seehra and L. Ramakrishnan, West Virginia University, Morgantown, WV.
3. *"Gold Filters for Mercury Removal from Coal-Fired Power Plants,"* K. Ganesan, Montana Tech, Butte, MT.
4. *"Electrolytic Solution Purification and Metal Recovery from Toxic Waste Streams,"* M. Free, University of Utah, Salt Lake City, UT.

**11:45 - 12:30 p.m. Closing / CAST Roadmap**

**Chairs:** Dr. Roe-Hoan Yoon, CAST Director  
Dr. Richard A. Bajura, CAST Co-Director

*Attendees are encouraged to attend this session and to provide critical input and feedback that is needed to update and revise the CAST R&D Roadmap.*

## Location



The CAST Workshop will be held at the **Embassy Suites Hotel and Workshop Center** in downtown Charleston, West Virginia. The hotel is adjacent to the Charleston Town Center, which features more than one million square feet of shopping and dining facilities. The hotel features 252 suites that include a separate living room, private bedroom, kitchen area (wet bar, refrigerator, coffee maker, and microwave), two telephones (voice mail/data ports), two TVs (complimentary premium channels), and Sony Play Station. The hotel has a well-equipped fitness center, whirlpool, sauna, and indoor pool. Hotel accommodations include a complimentary full cooked-to-order breakfast each morning. A full service restaurant offering Italian specialties and grilled steaks is available for lunch or dinner.

## Registration

Registration for the workshop can be made by returning the attached **Registration Form**. Advance registration (**prior to October 29, 2003**) is less expensive and encouraged. The registration fee must be paid by check (payment by credit card, money order, or company purchase order cannot be accepted). The registration fee does not cover lodging costs. Refund of registration fees due to attendee cancellation cannot be made after November 12, 2003.

## Accommodations

A block of rooms has been reserved at the **Embassy Suites Hotel** for this workshop. Please contact the hotel reservation desk by phone at (304) 347-8700 or by fax at (304) 347-8737 to make a reservation. A special daily rate of \$109 per room has been established for attendees. Please notify the hotel that you will be attending the CAST Workshop to receive this rate. The block reservation terminates on **October 29, 2003**, so please make reservations prior to this date. If you have special needs (e.g., dietary, disabilities, etc.), please contact Kathryn Dew at dewk@vt.edu for assistance.

## Continuing Education Credit

**Professional Development Hour (PDH) Credit** will be available to attendees of the technical sessions. These credits may be used to satisfy engineering continuing professional competency requirements of the West Virginia Board of Registration for Professional Engineers. Attendees may receive one (1) PDH credit for each contact hour in the technical sessions. A maximum of 7.5 PDH credits may be earned. Requests for PDH credit should be made at the registration desk. A certificate of PDH credits earned will be furnished.

## Social Activities

**Welcoming Reception** – A reception (open bar & full hors d'oeuvres) will be held on Wednesday evening from 7:00-9:00 p.m. in the Embassy Suites Ballroom to welcome workshop attendees.

**Workshop Luncheon**– A luncheon buffet will be held on Thursday from 12:00 - 1:30 p.m. in the Embassy Suites Athletic Club for all workshop attendees.

**Industry/University Reception** – A reception (open bar & light hors d'oeuvres) will be held on Thursday evening from 5:30-7:00 p.m. in Ballroom AB to promote university/industry interaction. All persons that participate in the luncheon and receptions must be registered for the CAST 2003 Annual Workshop.

**Shopping Spree** - Guests of attendees are invited to get a head start on Christmas shopping by spending Thursday (November 20) at the Charleston Town Center. The Town Center is the premier shopping destination in the tri-state area. With three levels and over one million square feet of space, the Town Center is home to more than 130 specialty stores and four anchor department stores. The Town Center is located directly adjacent to the Embassy Suites Hotel.

# Registration Form

Mail Registration Form to: CAST 2003 ANNUAL WORKSHOP  
100 Holden Hall (0239) - Virginia Tech  
Blacksburg, VA 24061

## Meeting Registration

Name:	
Preferred Name (For Name Tag):	
Title:	
Company:	
Business Address:	Street:
	City:
	State: Zip:
E-Mail Address:	

## Spouse/Guest (If Applicable)

Spouse/Guest Name (For Name Tag):	
Will Spouse/Guest Attend Receptions?	<input type="checkbox"/> Yes <input type="checkbox"/> No
Will Spouse/Guest Attend Thursday Luncheon?	<input type="checkbox"/> Yes <input type="checkbox"/> No

## Registration Fees

Type of Attendee:	On or Before 10/29/03	After 10/29/03
Full (Receptions, Lunch, Sessions)	\$125 _____	\$150 _____
Spouse/Guest (Receptions and Lunch)	\$40 _____	\$50 _____
Spouse/Guest (Receptions Only)	\$15 _____	\$25 _____
Student (Receptions, Lunch, Sessions)	\$40 _____	\$50 _____
Total Payment Enclosed	\$ _____	\$ _____

Make check payable to **CAST 2003 ANNUAL WORKSHOP** and enclose with completed Registration Form.

Refund of registration fees due to attendee cancellation cannot be made after **November 12, 2003**.

### Payment/Registration Questions:

Kathryn Dew  
Phone: (540) 231-7055  
Fax: (540) 231-4070  
E-Mail: dewk@vt.edu

### Office Use Only

Check #: \_\_\_\_\_  
Amount: \$ \_\_\_\_\_  
Invoice #: \_\_\_\_\_

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