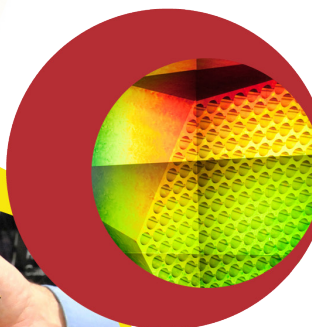
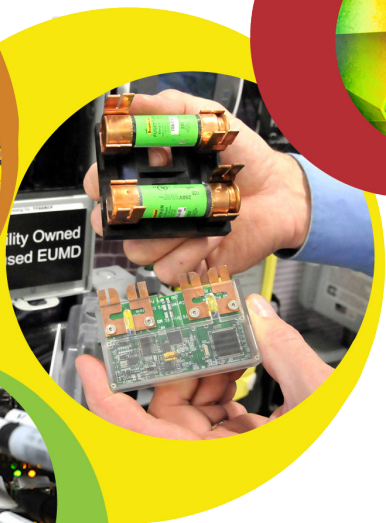


**Welcome to  
Argonne's**

# **Energy Showcase**

**September 15, 2012  
9:00 a.m. - 4:00 p.m.**



## For your safety...



At Argonne, we are dedicated to safety in all of our activities, and your safety is our first concern. Please observe the following rules and safety precautions:

- ▶ Please adhere to all Illinois traffic laws. Helmets are required on site if you are riding a motorcycle, bicycle, or using any wheeled sporting equipment. Use of cell phones while driving on site is also prohibited.
- ▶ In case of serious illness, injury or accident, please call 630-252-1911 or dial 911 from any phone at the laboratory. Contact any Argonne staff member (wearing red visors) for assistance. A first aid tent for minor injuries is located near Building 200.
- ▶ Alcohol, firearms and weapons are prohibited.
- ▶ Incoming calls for information or assistance should be made to 630-252-2525.
- ▶ In the event of inclement weather, a siren will sound. Please follow any Argonne staff member (wearing red visors) to the nearest building to seek shelter.

## Have a question? Need assistance or more information?



An information booth is located near Building 203 and will be open throughout the day to answer any questions you may have, provide directions or assistance. Visitors are encouraged to stop by and sign up for our monthly e-newsletter, biannual magazine, or to request additional information.

## Shuttle Service



Free on-site shuttle service is available throughout the day. It is recommended that you park your vehicle and use the transportation provided. Please see the map for the location of parking areas and shuttle stops around the site.

Free shuttle service is also available for visitors parking at the Argonne Park, located off of Cass Avenue, and from the 300 area parking lots. The shuttle will drop off and pick up visitors for the duration of the Showcase.

## Parking

Several lots on site are designated parking areas. See full map for locations.



## Food Service



Hungry? Food and beverages are available for purchase at Buildings 213 and 401. A refreshment tent is also available near Building 200.

## If you only have an hour...

Limit your visit to Building 240, Building 401 or the 200 area. Each of these locations has numerous exhibits, tours and activities taking place simultaneously.

In Building 240 you can see computing, modeling and visualization demonstrations as well as learn more about the environment.

In Building 401 you can tour the Advanced Photon Source and see many displays on energy research.

In the 200 area you can learn more about different types of alternative energy, transportation research and sustainability or tour Argonne's ATLAS facility.

## Photos and Videos

Want to capture the memory? Photos and videotaping are permitted.

## Stay Connected

On Twitter? Tweet about the showcase with the tag #energyshowcase!

You don't have to wait until the next showcase to keep in touch with Argonne! Get your science news anytime:



Sign up for our monthly e-newsletter or biannual magazine at [www.anl.gov/subscribe](http://www.anl.gov/subscribe)



Be our fan on Facebook:  
[facebook.com/argonne](http://facebook.com/argonne)



Follow us on Twitter:  
[@argonne](https://twitter.com/argonne)



Cool science videos:  
[youtube.com/argonnenationalab](http://youtube.com/argonnenationalab)



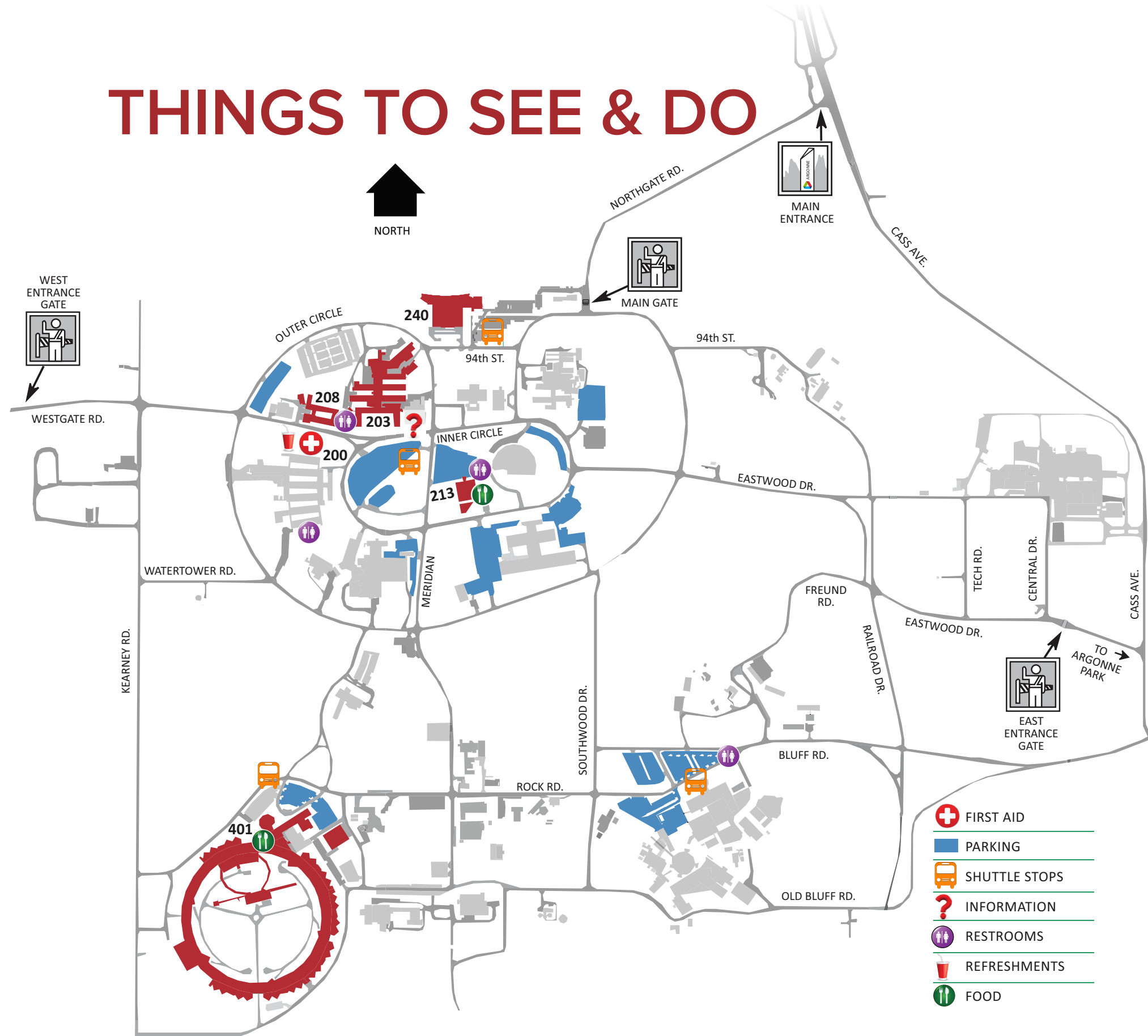
Science images:  
[flickr.com/argonne](http://flickr.com/argonne)

## Acknowledgements

Argonne would like to thank the following organizations for their assistance and participation in the 2012 Energy Showcase:

- ▶ Chicago Council on Science and Technology
- ▶ DuPage Children's Museum
- ▶ Guckenheimer Enterprises, Inc.
- ▶ Illinois Science Council
- ▶ Park Systems
- ▶ Northern Illinois University/STEMFEST
- ▶ Sodexo
- ▶ The University of Chicago
- ▶ United States Department of Energy

# THINGS TO SEE & DO



## 203

### Physics, Sustainability, Partnerships

Tour the nation's premier nuclear accelerator and learn about the inner workings of atoms.

#### INSIDE THE BUILDING

- ▶ See how physicists accelerate nuclei
- ▶ Demos with optics, imaging and floating objects

Living sustainably means incorporating scientific innovation into our everyday lives.

#### ON THE LAWN

- ▶ Ride the Energy Bike
- ▶ Vermicomposting with real worms
- ▶ Imagine a 100% electric-powered neighborhood
- ▶ Local partner organizations that promote science and technology
- ▶ Purchase souvenir T-shirts (cash only)

## 208

### Nuclear Engineering

Time-travel through 70 years of nuclear energy history at Argonne and learn what's in store for the future.

#### INSIDE THE BUILDING

- ▶ Argonne's nuclear museum
- ▶ How reactors work
- ▶ Recycling nuclear fuel
- ▶ Control a robot that handles used fuel

## 200

### Materials, Chemistry, Security, Safety

Argonne's work in materials science has yielded exciting discoveries in homeland security, electronics, energy and more.

#### ON THE LAWN

- ▶ The latest solar energy technology
- ▶ Carbon-based molecules that can improve electronics
- ▶ Silicon-based nanofingers that "see" molecules and atoms
- ▶ Importance of safety at Argonne and best practices for home, work and play
- ▶ How microscopes let us see materials at the nanoscale
- ▶ How fuel cells work and how catalysts can help them
- ▶ How vibrations get turned into energy
- ▶ Homeland security, including nuclear safeguards and surveillance devices
- ▶ Common weaknesses in security

## 213

### Department of Energy, Transportation

Preview a clean energy future thanks to research and development in chemistry and engineering.

#### INSIDE THE BUILDING

- ▶ How the U.S. Department of Energy and the national labs improve our lives

#### ON THE LAWN

- ▶ Learn about advanced battery technology and future energy storage research
- ▶ How electric cars will "talk" to the grid
- ▶ A futuristic green car built for the EcoCAR competition

- ▶ A portable Endurance Bioreactor that can make biofuel out of human waste
- ▶ Peek inside an engine while it's operating
- ▶ Figure out your car's greenhouse gas emissions with a carbon calculator

## 240

### Computing, Math, Environment

See one of the world's fastest supercomputers (named Mira) and discover how scientific visualization lets researchers "see" inside exploding stars, nuclear reactors and the human brain.

#### INSIDE THE BUILDING

- ▶ Play "Foldit", a computer game where you contribute to scientific research about proteins just by playing
- ▶ Match your wits against our electricity game show to win prizes
- ▶ Explore math and spatial relationships through the Japanese art of origami
- ▶ Learn how to monitor your own neighborhood's air quality
- ▶ How computer models can predict changes to Earth's climate
- ▶ New wind power technologies and ideas
- ▶ Hands-on optical rain gauge demo shows a different way to measure rain and snow
- ▶ Next-gen workstations where scientists can see data in 3-D
- ▶ New tools predict blackouts and help emergency responders evacuate people in disasters

## 401

### Advanced Photon Source

#### INSIDE THE BUILDING

Tour the Advanced Photon Source (APS), the lab's baseball-stadium-sized synchrotron, which produces some of the most intense X-rays in the world to study everything from cars and batteries to spider silk.

- ▶ See yourself in infrared
- ▶ Watch objects being levitated using sound and diamonds
- ▶ Interactive display of the control system of a linear accelerator
- ▶ "Drive" a simulated electron beam through vacuum tubes and magnets
- ▶ Experience a solar energy exhibit powered by the sun
- ▶ Demo of how scientists focus electron beams
- ▶ Cross-section of the APS storage ring
- ▶ Miniature beamline with moving motors
- ▶ Control the trajectory of a laser pointer through a set of optics
- ▶ Play with magnetic toys that demonstrate principles of magnetism

## About Argonne

Argonne National Laboratory seeks solutions to pressing national problems in science and technology. The nation's first national laboratory, Argonne conducts leading-edge basic and applied research in virtually every scientific discipline. Argonne researchers work closely with researchers from hundreds of companies, universities, and federal, state and municipal agencies to help them solve their specific problems, advance America's scientific leadership and prepare the nation for a better future. With employees from more than 60 nations, Argonne is managed by UChicago Argonne, LLC for the U.S. Department of Energy's Office of Science.

[www.anl.gov](http://www.anl.gov)



U.S. DEPARTMENT OF  
**ENERGY**

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NATIONAL LABORATORY

