



Argonne Training Program on Extreme-Scale Computing

Introduction to the ATPESC

Marta García Martínez
ATPESC 2018 Program Director

Q Center, St. Charles, IL (USA)
July 29 – August 10, 2018



Outline

 **Welcome**

 **A few words about Argonne National Laboratory**

 **Motivation of the ATPESC**

 **The curriculum**

 **Logistics and reminders**

WELCOME

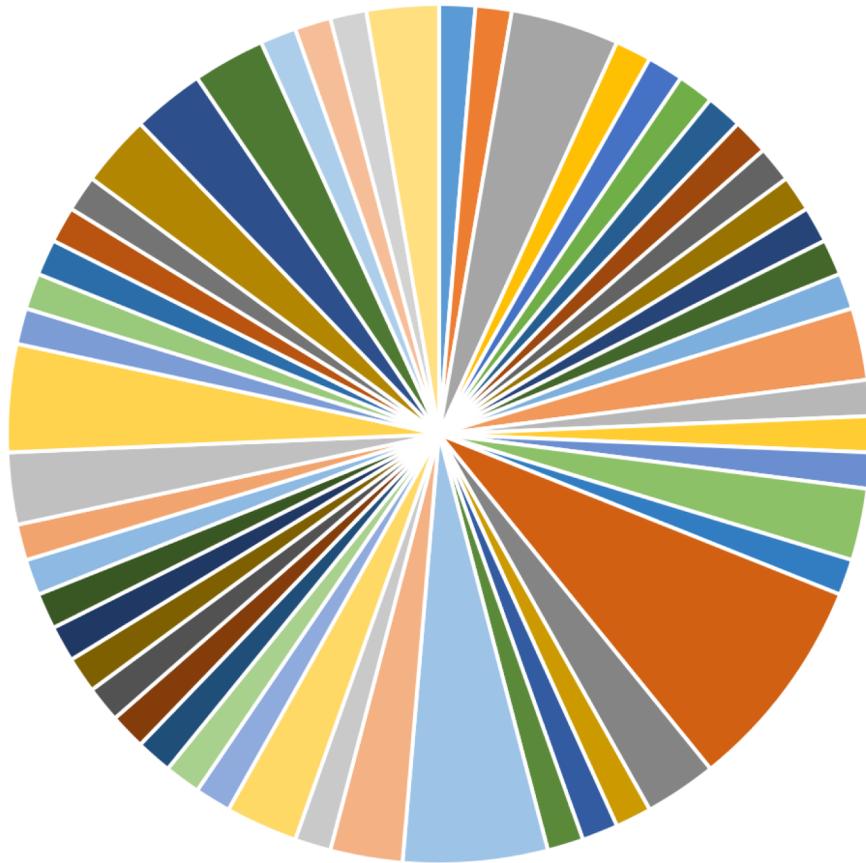
Welcome!

74 ATPESC 2018 Participants

Aaron	Aaron	Agnieszka	Amelia	Andrew	Anthony
Ashleigh	Bo	Brendan	Bryce	Christopher	Chunlei
Daniel	Dario	Davide	Duoming	Elizabeth	Giovanni
Haithem	Henry	Hilario	Hyun	Jack	Jared
Jeremy	Jinxun	Johannes	Jonas	Julian	Jun
Kai-Yuan	Karima	Kenneth	Kevin	Kristi	Laurie
Leandro	Lukas	Maria	Massimiliano	Matias	
Matthew	Md	Michael	Nicole	Oguz	Oscar Luis
Petr	Priyanka	Robert	Rudradatt	Ryan	Satyam
Sayan	Shafigh	Socratis	Srinivasan	Stefan	Stephen
Storm	Thomas	Timothy	Timur	Tong	Umesh
Valentina	Victor	Vivek	William	Yao-Lung	Yeqing
Yu	Yu Hong	Yuzhi			

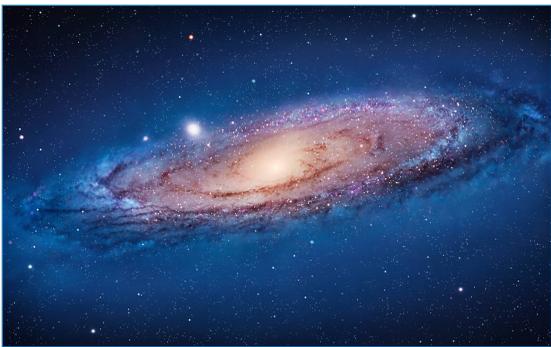
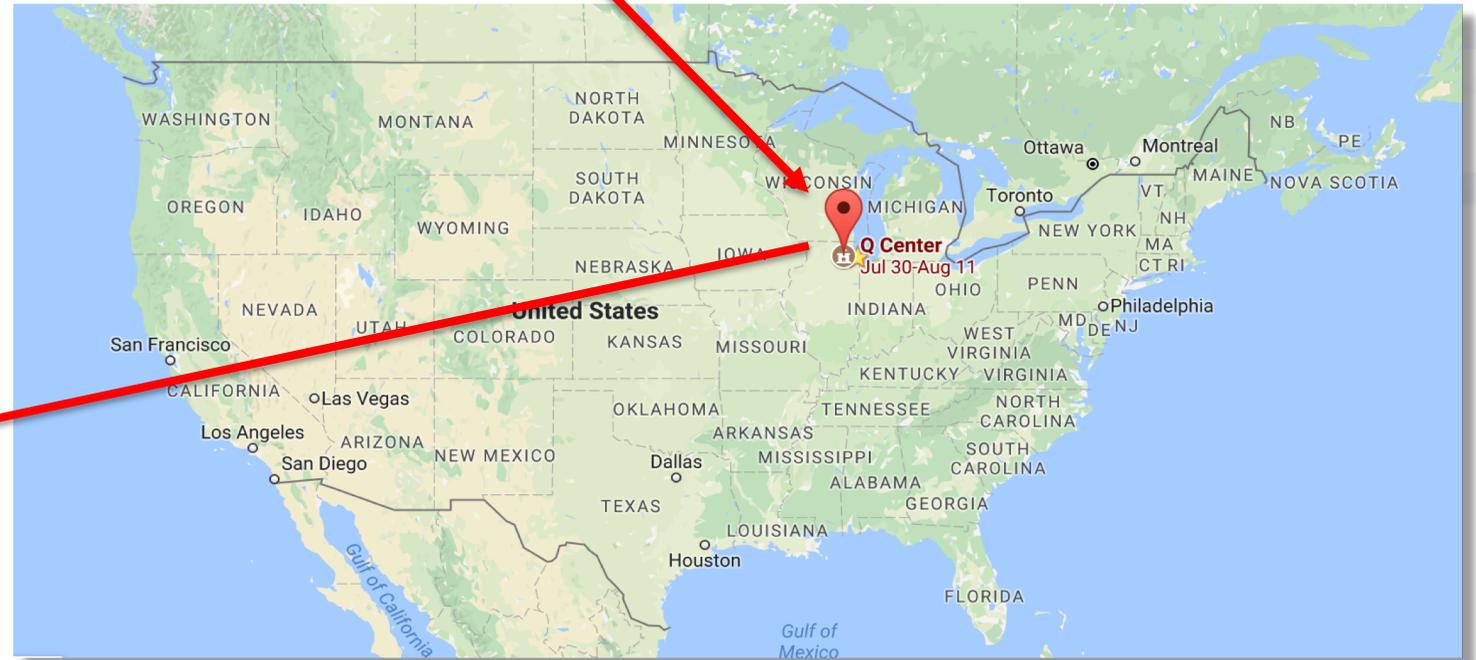
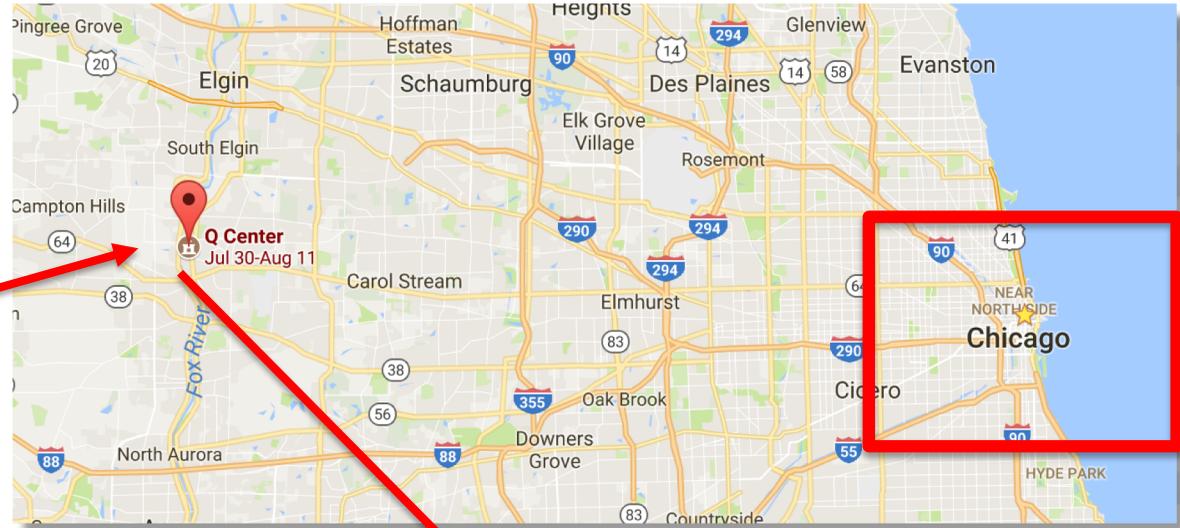
Welcome!

ATPESC 2018
52 Institutions



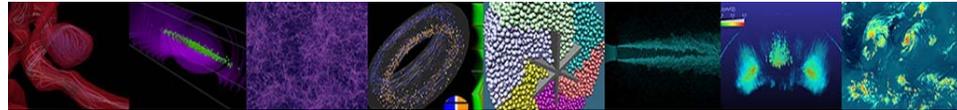
- Ames Laboratory
- Argonne National Laboratory (3)
- Bates College
- BP America Inc.
- Brookhaven National Laboratory
- Carnegie Mellon University
- Emory University
- Illinois Institute of Technology
- Iowa State University
- King's College London
- Lawrence Livermore National Laboratory (2)
- Massachusetts Institute of Technology
- NASA Langley Research Center (4)
- Northeastern University
- Numerical Algorithms Group
- Polytechnic University of Catalonia
- Purdue University
- SISSA
- Stony Brook University
- The University of Tennessee, Knoxville (2)
- University of Alabama
- University of California, Berkeley
- University of Campinas
- University of Oregon (2)
- University of Wyoming
- USGS
- Aramco Services Company
- Barcelona Supercomputing Center
- Bilkent University
- Brigham Young University
- Brown University
- CEA Saclay France
- Georgia Institute of Technology (2)
- Indiana University Bloomington
- IT4Innovations, VSB - Technical University of Ostrava (2)
- Lawrence Berkeley National Laboratory (6)
- Los Alamos National Laboratory
- Michigan State University
- Naval Nuclear Laboratory (2)
- Northwestern University (2)
- Oak Ridge National Laboratory
- Princeton Plasma Physics Laboratory
- Rensselaer Polytechnic Institute
- Stanford University
- Technische Universität Wien
- The University of Texas at Austin (3)
- University of Buenos Aires
- University of Cambridge
- University of Illinois at Chicago (2)
- University of Southern California (2)
- UNSW Sydney
- Washington State University (2)

You are here: Space ...



You are here: Time...

 Argonne Training Program on Extreme-Scale Computing



ATPESC
2019

ATPESC
2020

...



ATPESC 2018

- Two-weeks training program
- Once-in-a-lifetime experience
- Conceived as a retreat

A few words about Argonne National Laboratory

Argonne – a part of DOE National Laboratory System

Office of Science Laboratories

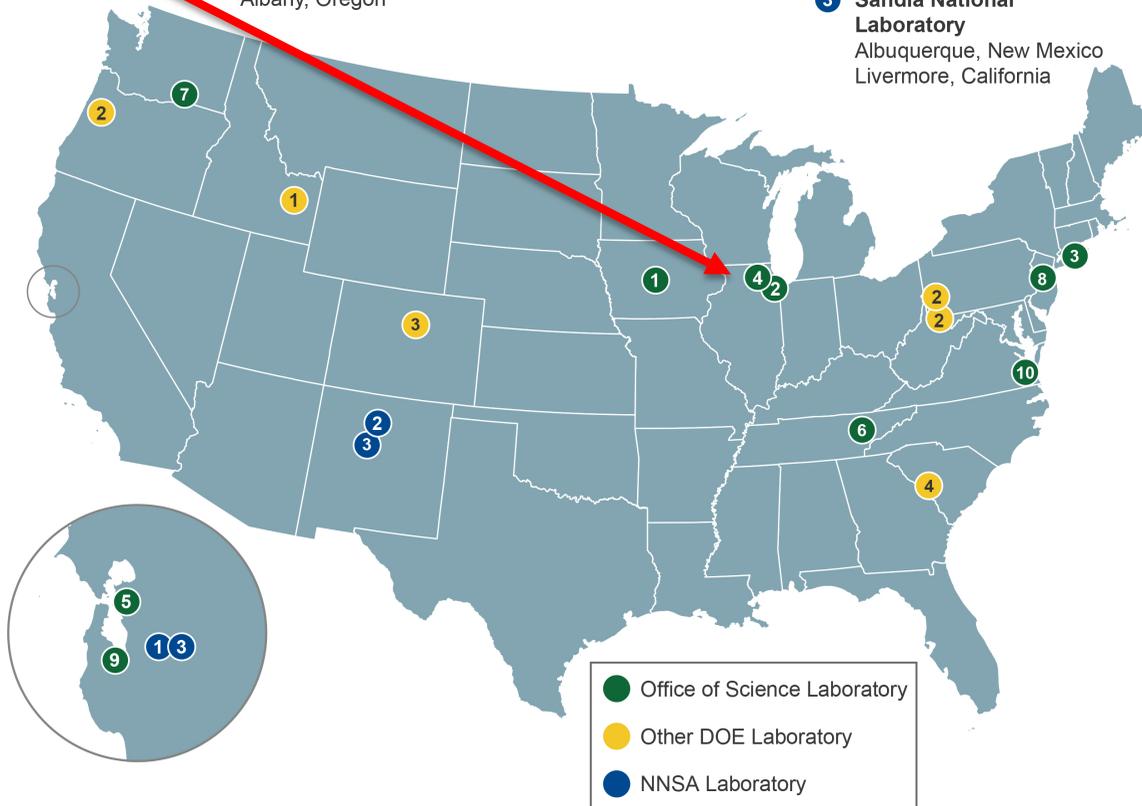
- 1 Ames Laboratory
Ames, Iowa
- 2 Argonne National Laboratory
Argonne, Illinois
- 3 Brookhaven National Laboratory
Upton, New York
- 4 Fermi National Accelerator Laboratory
Batavia, Illinois
- 5 Lawrence Berkeley National Laboratory
Berkeley, California
- 6 Oak Ridge National Laboratory
Oak Ridge, Tennessee
- 7 Pacific Northwest National Laboratory
Richland, Washington
- 8 Princeton Plasma Physics Laboratory
Princeton, New Jersey
- 9 SLAC National Accelerator Laboratory
Menlo Park, California
- 10 Thomas Jefferson National Accelerator Facility
Newport News, Virginia

Other DOE Laboratories

- 1 Idaho National Laboratory
Idaho Falls, Idaho
- 2 National Energy Technology Laboratory
Morgantown, West Virginia
Pittsburgh, Pennsylvania
Albany, Oregon
- 3 National Renewable Energy Laboratory
Golden, Colorado
- 4 Savannah River National Laboratory
Aiken, South Carolina

NNSA Laboratories

- 1 Lawrence Livermore National Laboratory
Livermore, California
- 2 Los Alamos National Laboratory
Los Alamos, New Mexico
- 3 Sandia National Laboratory
Albuquerque, New Mexico
Livermore, California



Together, the **17 DOE laboratories** comprise a preeminent federal research system, providing the Nation with strategic scientific and technological capabilities. The laboratories:

- Execute long-term government scientific and technological missions, often with complex security, safety, project management, or other operational challenges;
- Develop unique, often multidisciplinary, scientific capabilities beyond the scope of academic and industrial institutions, to benefit the Nation's researchers and national strategic priorities; and
- Develop and sustain critical scientific and technical capabilities to which the government requires assured access.

Source: https://science.energy.gov/~media/_images/laboratories/DOE_Laboratories_Map_2014_Hi-res.jpg

The origin of Argonne National Laboratory

CP-1 under the stands of Stagg field of U. Chicago



Chicago Pile-1 was the world's first artificial nuclear reactor. The first man-made self-sustaining nuclear chain reaction was initiated on December 2, 1942



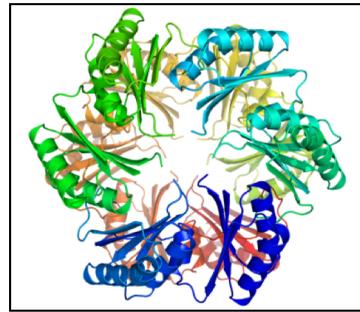
Chicago Pile-1: A Brick History

<https://www.youtube.com/watch?v=mTPiTJ2bKS0>

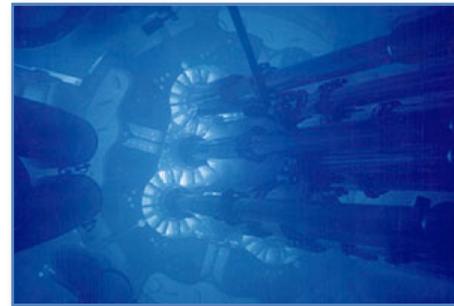
Argonne's mission: Provide science-based solutions to pressing global challenges



Energy Science



Environmental Sustainability

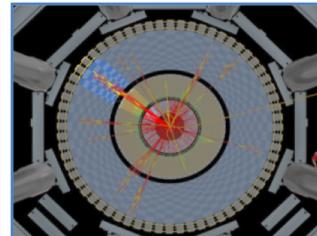
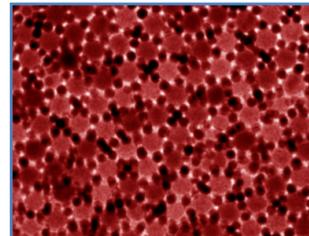


Nuclear and National Security

*Use-Inspired Science and Engineering ...
... Discovery and transformational Science and Engineering*



Major User Facilities



Science and Technology Programs

RESEARCH DIVISIONS		FACILITIES, CENTERS, AND INSTITUTES	
Computing, Environment and Life Sciences		User Facilities	
BIO	Biosciences	APS	Advanced Photon Source
EVS	Environmental Science	ALCF	Argonne Leadership Computing Facility
MCS	Mathematics and Computer Science	ATLAS	Argonne Tandem Linear Accelerator System
Energy and Global Security		ARM	ARM Southern Great Plains
ES	Energy Systems	CNM	Center for Nanoscale Materials
GSS	Global Security Sciences	Centers and Joint Institutes	
NE	Nuclear Engineering	AAI	Argonne Accelerator Institute
Photon Sciences		ACCESS	Argonne Collaborative Center for Energy Storage Science
ASD	Accelerator Systems	ADW	Argonne Design Works
AES	APS Engineering Support	ALI	Argonne Leadership Institute
XSD	X-ray Science	CEES	Center for Electrochemical Energy Science
Physical Sciences and Engineering		CTR	Center for Transportation Research
CSE	Chemical Sciences and Engineering	CRI	Chain Reaction Innovations
HEP	High Energy Physics	CI	Computation Institute
MSD	Materials Science	IACT	Institute for Atom-Efficient Chemical Transformations
NST	Nanoscience and Technology	IGSB	Institute for Genomics and Systems Biology
PHY	Physics	IME	Institute for Molecular Engineering
		JCESR	Joint Center for Energy Storage Research
		MCSG	Midwest Center for Structural Genomics
		NSP	National Security Programs
		NAISE	Northwestern-Argonne Institute for Science and Engineering
		RISC	Risk and Infrastructure Science Center
		SBC	Structural Biology Center

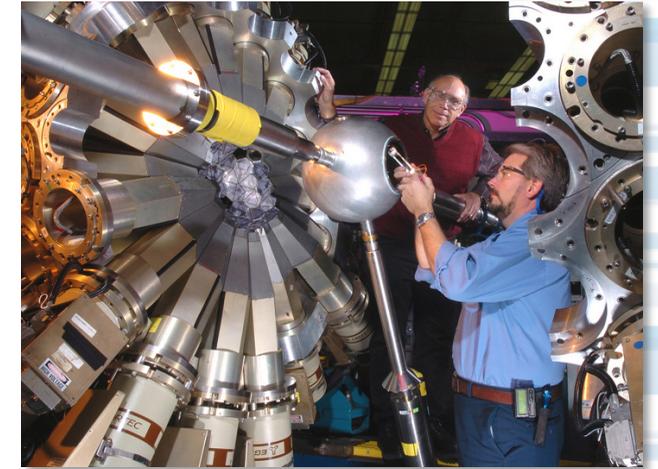
<https://www.anl.gov>

Major Scientific User Facilities at Argonne

**Advanced
Photon
Source**



**Argonne Tandem Linear
Accelerator System**



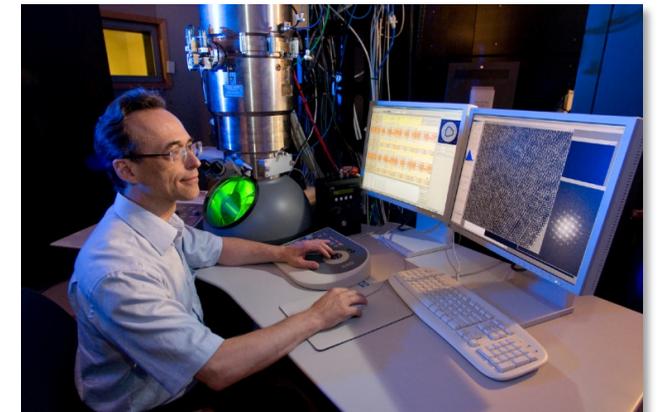
**Center for
Nanoscale
Materials**



**Argonne
Leadership
Computing
Facility**

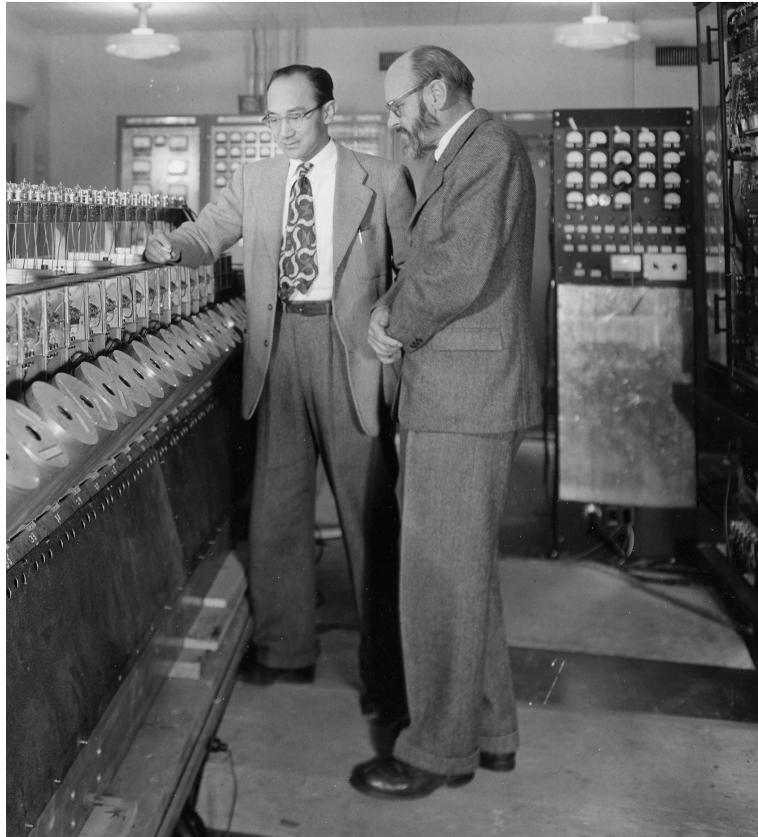


**Electron
Microscopy
Center**



AVIDAC (1949-1953)

Argonne's Version of the Institute's Digital Arithmetic Computer



“Moll” Flanders, Director
Jeffrey Chu, Chief Engineer

- **AVIDAC:** based on a prototype at the Institute for Advanced Study in Princeton
- **Margaret Butler wrote AVIDAC's interpretive floating-point arithmetic system**
 - Memory access time: 15 microsec
 - Addition: 10 microsec
 - Multiplication: 1 millisecc
- **AVIDAC press release:**
100,000 times as fast as a trained “Computer” using a desk calculator

Early work on computer architecture



Margaret Butler helped assemble the ORACLE computer with ORNL Engineer Rudolph Klein

In 1953...

ORACLE was the world's fastest computer, multiplying 12-digit numbers in .0005 seconds (2Kop/s).

Designed at Argonne, it was constructed at Oak Ridge.

The future... Aurora Exascale System



Argonne National Laboratory Tour

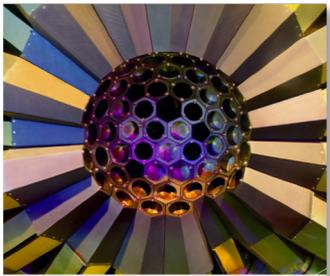
(if you signed in)

Saturday, August 4 8:30 pm – 12:50 pm (round-trip from Q Center to Argonne by bus with stop at downtown St. Charles on the way back)



The Argonne Leadership Computing Facility (ALCF) is one half of the U.S. Department of Energy's (DOE) Leadership Computing Facility, which deploys two diverse high-performance computer architectures that are 10 to 100 times more powerful than typical research computing.

The Advanced Photon Source (APS) is one of the most technologically complex machines in the world. The APS provides the brightest high-energy X-ray beams in the Western Hemisphere to more than 6,000 scientists each year from every U.S. state, the District of Columbia, Puerto Rico, and countries in the world.



The Argonne Tandem Linac Accelerator System (ATLAS) is the world's first ion accelerator using superconducting devices for the energy gain. It is capable of accelerating ions of all elements, both stable and radioactive, from hydrogen to uranium for research into the properties of the nucleus, the core of matter, the fuel of stars.

The Nuclear Energy Exhibition Hall (NEE) showcases Argonne's rich heritage in the development of nuclear reactors and its current role in the development of next-generation reactors and fuel cycle technologies.



Aerial view of Argonne National Laboratory

Advanced
Photon
Source
(APS)

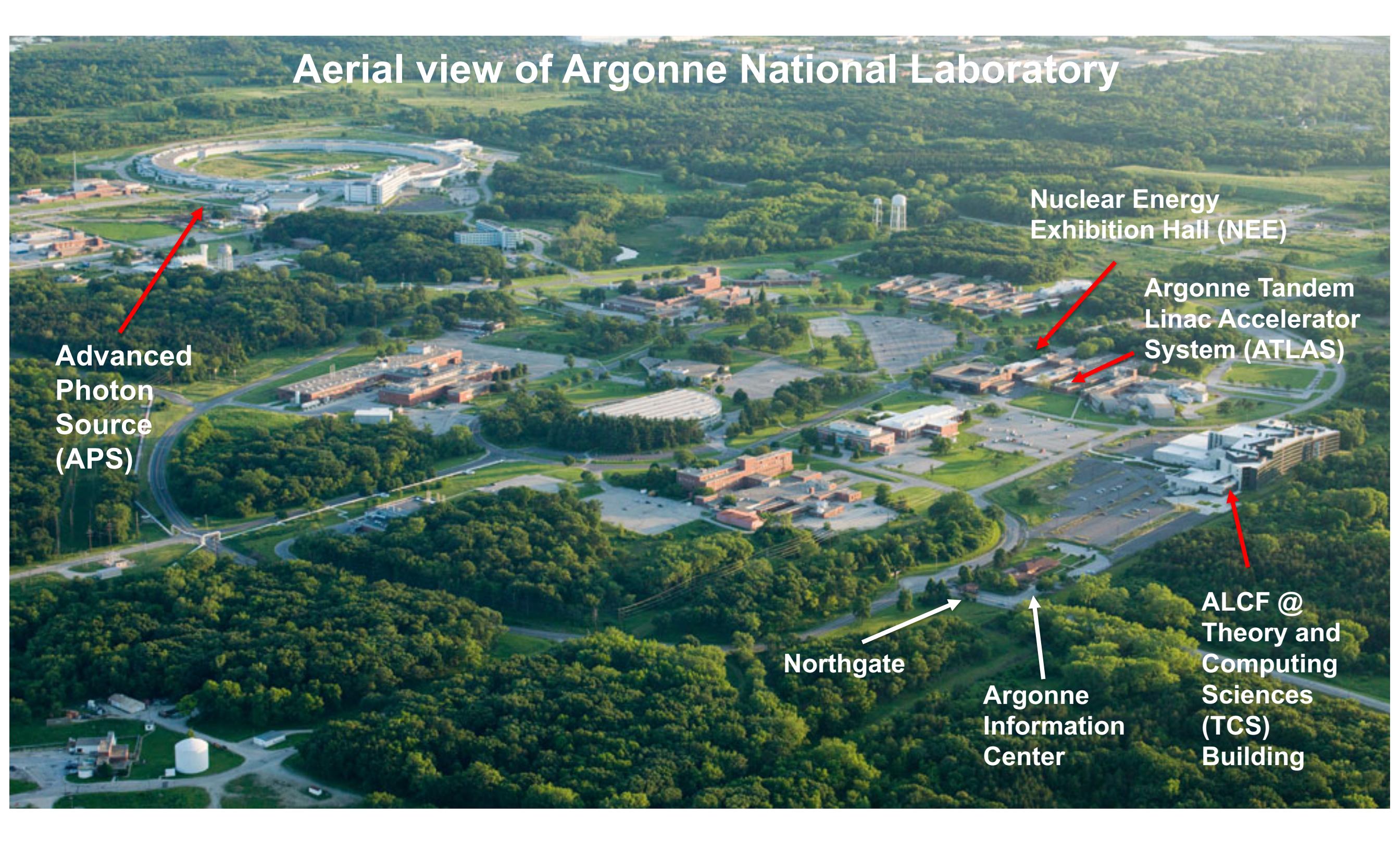
Nuclear Energy
Exhibition Hall (NEE)

Argonne Tandem
Linac Accelerator
System (ATLAS)

Northgate

Argonne
Information
Center

ALCF @
Theory and
Computing
Sciences
(TCS)
Building

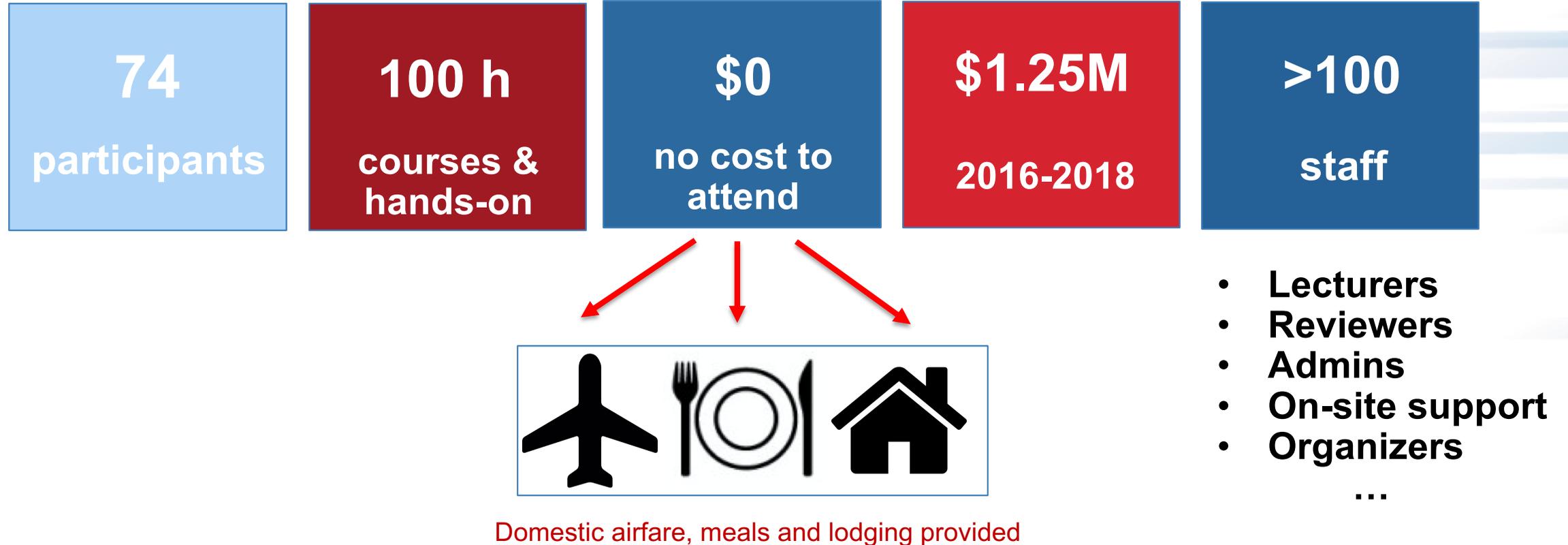


Motivation of the ATPESC

Motivation of the ATPESC

- Today's most **powerful supercomputers** have **complex hardware architectures** and **software environments**
 - and even greater complexity is on the horizon on next-generation and exascale systems
- The **scientific and engineering applications** that are tackled with these systems are themselves **complex**
- There is a **critical need for specialized, in-depth training for the computational scientists** poised to facilitate breakthrough science and engineering using these systems

ATPESC by the numbers



The Curriculum

Curriculum Tracks and their leaders

- **Track 1: Hardware Architectures** – Pete Beckman
- **Track 2: Programming Models and Languages** – Rajeev Thakur and Pavan Balaji
- **Track 3: Data-intensive Computing and I/O** – Rob Latham and Phil Carns
- **Track 4: Numerical Algorithms and Software for Extreme-Scale Science**
– Lois McInnes, Lori Diachin and Mark Miller
- **Track 5: Performance Tools and Debuggers**– Ray Loy and Scott Parker
- **Track 6: Software Engineering** – Anshu Dubey and Katherine Riley
- **Track 7: Visualization and Data Analysis** – Mike Papka and Joe Insley

Dinner Talks

- Purpose: present additional topics that will probably be relevant to your research at some point in your career – but in any case interesting

	Susan Coghlan ANL		Phil Collela LBL		Nicola Ferrier ANL
	Rao Kotamarthi ANL		Todd Gamblin LLNL		Ira Goldberg ANL
	Ron Brightwell SNL		Andrew Siegel ANL		Liz Marai UIC

ATPESC Resources

The screenshot shows the website's navigation bar with links for SC Home, Organization, Jobs, Contact, and DOE Home. The main header includes the U.S. Department of Energy logo and the Office of Science name. A search bar is present. Below the navigation, a breadcrumb trail reads: You are here: SC Home » User Facilities » User Facilities at a Glance » ASCR User Facilities. The main content area is titled 'User Facilities at a Glance' and 'ASCR User Facilities'. It lists several national scientific user facilities with accompanying images and brief descriptions:

- Argonne Leadership Computing Facility (ALCF)** at Argonne National Laboratory. The ALCF provides the computational science community with a world-class computing capability dedicated to breakthrough science and engineering.
- Energy Sciences Network (ESnet)** at Lawrence Berkeley National Laboratory. The ESnet is a high-speed network serving thousands of Department of Energy researchers and collaborators worldwide.
- National Energy Research Scientific Computing Center (NERSC)** at Lawrence Berkeley National Laboratory. The NERSC is the mission high performance computing facility for the Department of Energy's Office of Science, and is a world leader in accelerating scientific discovery through computation.
- Oak Ridge Leadership Computing Facility (OLCF)** at Oak Ridge National Laboratory. The OLCF provides the computational science community with world-class computing capability dedicated to breakthrough science and engineering.

Additional sections on the page include 'User Resources', 'User Statistics', 'Policies and Processes', 'Frequently Asked Questions', 'User Facility Science Highlights', and 'User Facility News'. A contact information box for the Office of Science is also visible.

 **ALCF** – Mira, Cetus, Vesta, Cooley and Theta

 **JLSE** – all testbeds

 **NERSC** – Edison and Cori

 **OLCF** – Titan

Source: <https://science.energy.gov/user-facilities/user-facilities-at-a-glance/ascr/>

Yes, the ATPESC is an intensive program

- Many lectures every day, followed by evening hands-on sessions
- Ideally we would cover all topics in more depth but the result would be a six-week program
 - But few people's schedules would allow them to participate
- Note the **8:30 am** starting time, dinner at **5:30 pm** right after the end of the afternoon lectures, evening sessions

ATPESC Deliverables

Presentations

The slides of the Lectures will be available before the talk with the exception of the Dinner Talks (to keep some mystery)

 All presentations will be available under a Box folder at the end of the program

Videos

The videos of the Lectures will be available by mid-September on the Argonne Youtube Channel

<https://www.youtube.com/user/ArgonneNationalLab>

Goals for today

Check-in (hotel and program)

ATPESC Resources

- Pick up ALCF and OLCF tokens, and NERSC account instructions, log in to JLSE
- Log in to all ATPESC Resources

Introductions and discussions

Plan your time at ATPESC

- Agenda, tracks, breaks ...
- Location, activities, food ...

Goals for the next two weeks

 **Get inspired** **New ideas** **Challenge your science and codes**

 **Take advantage of ATPESC Resources**

 **Talk with Lecturers, Participants, Support Staff...**

 **& Enjoy!**

Logistics and reminders

ATPESC Website

extremecomputingtraining.anl.gov



[HOME](#) [ABOUT ATPESC](#) [ATPESC ARGONNE TOUR](#) [AGENDA 2018](#) [PARTICIPANTS 2018](#) [LECTURERS 2018](#) [PAST PROGRAMS](#)



ATPESC

ARGONNE TRAINING PROGRAM ON EXTREME-SCALE COMPUTING

AGENDA 2018

WHEN
 July 29 - August 10, 2018

WHERE
 St. Charles, IL
Q Center



Go to the ATPESC agenda

<https://extremecomputingtraining.anl.gov/agenda-2017/>

The screenshot shows the ATPESC 2018 agenda page. At the top, the Argonne National Laboratory logo is visible, along with navigation links: HOME, ABOUT ATPESC, ATPESC ARGONNE TOUR, AGENDA 2018, PARTICIPANTS 2018, LECTURERS 2018, and FAST PROGRAMS. A large blue banner reads "Agenda 2018". Below this, there are three filter buttons: "Filter by track", "Filter by location", and "Filter by days". The "Filter by track" dropdown is open, showing options: All, Hardware Architectures, Programming Models and Languages, Data Intensive Computing and I/O, Numerical Algorithms and Software for Extreme-Scale Science, Performance Tools and Debuggers, Software Productivity, Visualization and Data Analysis, and Dinner Talks. The "Filter by days" dropdown is also open, showing dates from July 29, 2018, to August 10, 2018. The "Filter by location" dropdown is open, showing options: All, Q Tower Dining, Room D L202, Fox River Ballroom 2, Fox River Ballroom 6, St. Charles Amphitheater. The main content area shows the agenda for July 29, 2018, with three events: "On-site Check-in" (2:00 pm - 4:00 pm, Room D L202), "Presentation: Introduction to the ATPESC" (4:00 pm - 4:30 pm, St. Charles Amphitheater, by Marta Garcia Martínez, ANL), and "Presentation: Quick Start on ATPESC Resources" (4:30 pm - 5:30 pm, St. Charles Amphitheater, by Ray Loy, ANL). Red arrows point from the filter dropdowns to their respective buttons on the page.

Go to the ATPESC agenda



HOME ABOUT ATPESC ATPESC ARGONNE TOUR **AGENDA 2018** PARTICIPANTS 2018 LECTURERS 2018 PAST PROGRAMS

Agenda 2018

Filter by track ▾ Filter by location ▾ Filter by days ▾

July 29, 2018

2:00 pm - 4:00 pm

[On-site Check-in](#)
Room D L202

More info >

4:00 pm - 4:30 pm

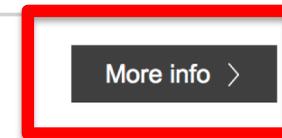
[Presentation: Introduction to the ATPESC](#)
St. Charles Amphitheater

More info >



Marta García Martínez, ANL

**Click here:
"More info"**



Go to the ATPESC agenda



[HOME](#) [ABOUT ATPESC](#) [ATPESC ARGONNE TOUR](#) [AGENDA 2018](#) [PARTICIPANTS 2018](#) [LECTURERS 2018](#) [PAST PROGRAMS](#)

Presentation: Introduction to the ATPESC



Click here



LOCATION: **St. Charles Amphitheater**

DATE: **July 29, 2018**

TIME: **4:00 pm - 4:30 pm**



MARTA
GARCÍA
MARTÍNEZ,
ANL



ATPESC Pocket Folder

Contains information about:

- Maps of the Q Center (Conference Area, Guest, Aerobic Mile Chart)
- Restaurants around Q Center
- Some flyers of the systems that you will be using
- WIFI connection
- ANL tour flyers
- *Argonne Now* magazine
- Information about tokens and what to do in case of problems (provided during check-in)

General Logistics

- Breakfast & Lunch in the Q Tower Dining
- Menus will be sent after this talk.
- A photographer will stop by one day to take a **group photo**. We will let you know in advance.
- An Argonne team might conduct brief **interviews** with some participants.
- Buses location** for ANL Tour and ORD transportation (8/10) will depart from the South Entrance (close to the Gift Shop)



	Elevator
	Entrance
	Keycard entrance
	Accessible entrance
	Stairs
	Automatic External Defibrillator
	Smoking shelter
	Kiosk (Internet)
	Business Center
	Conference Dining

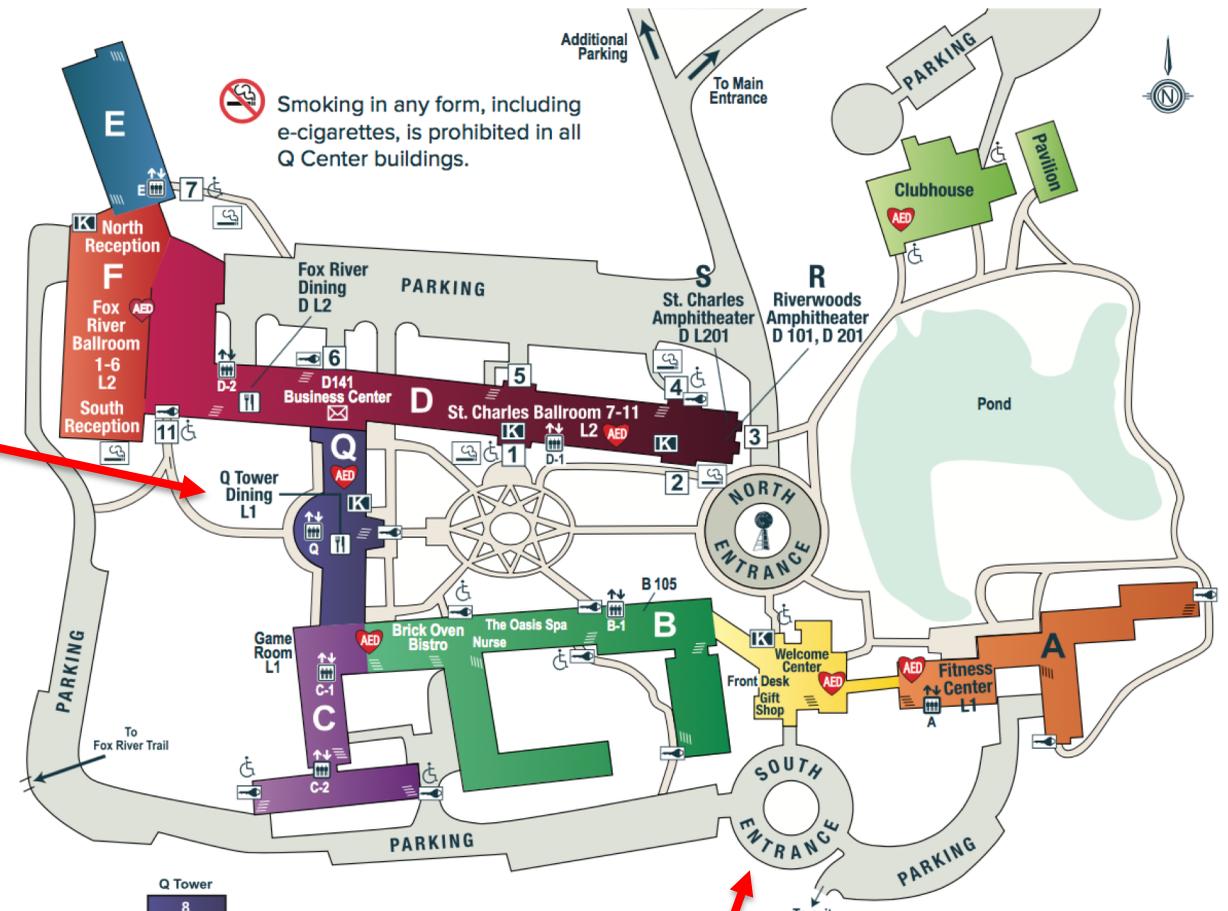
Navigating Q

Signs like this are posted on hallway ceilings and above doorways to help you find your way.



Current area and floor Areas you're headed toward Turns you need to make to get to those areas

Conference Area E	Conference Area F	Conference Area D	Q Tower	Guest Area C	Guest Area B	Guest Area A
L1	L1	2	8	5	5	5
L2	L2	1	7	4	4	4
L3	L2	3	6	3	3	3
L4	L2	4	5	2	2	2
	L1	1	4	1	1	1
	L1	2	3	3	2	2
	L1	3	2	2	1	1
	L1	4	1	1	1	1
	L1	5	1	1	1	1



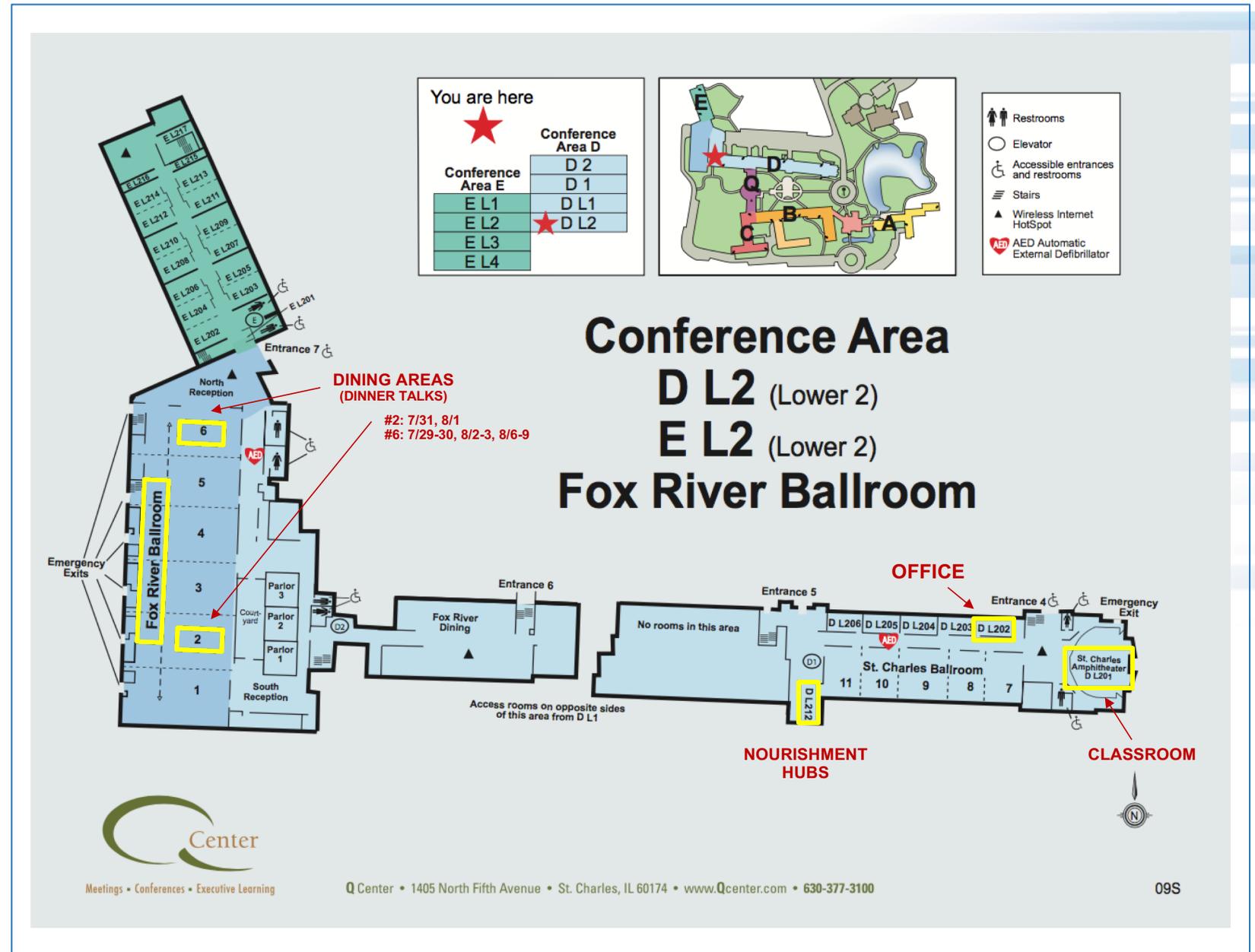
1405 North Fifth Ave. | St. Charles, IL 60174 | 877.774.8437 | Front Desk 630.377.3100 | qccenter.com

Download our app today for navigation, event information and services!

Download on the App Store | GET IT ON Google Play

General Logistics

- All lectures and hands-on sessions in the Lecturer Room in the St. Charles Amphitheater
- Dinner Talks in the Fox River Ballroom 2 and 6
- Nourishment Hubs available; 8 – 11 am and 2 – 5 pm
- Office hours: 8 am – 5 pm (lunch break closed: 12 – 1 pm)



Mens sana in corpore sano

Mens sana in corpore sano is a Latin phrase, usually translated as "a healthy mind in a healthy body". The phrase is widely used in sporting and educational contexts to express the theory that physical exercise is an important or essential part of mental and psychological well-being. (*)

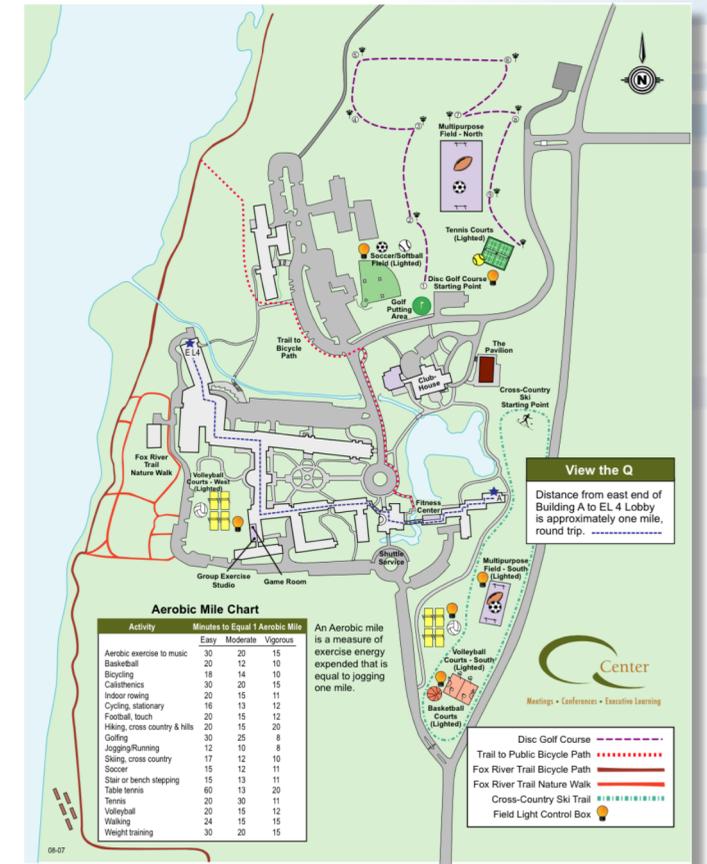
Source: https://en.wikipedia.org/wiki/Mens_sana_in_corpore_sano

SUN 29 Jul	MON 30 Jul	TUE 31 Jul	WED 1 Aug	THU 2 Aug	FRI 3 Aug	SAT 4 Aug
First Light 5:13 am	First Light 5:14 am	First Light 5:15 am	First Light 5:16 am	First Light 5:17 am	First Light 5:18 am	First Light 5:19 am
Sunrise 5:44 am	Sunrise 5:45 am	Sunrise 5:46 am	Sunrise 5:47 am	Sunrise 5:48 am	Sunrise 5:49 am	Sunrise 5:50 am
Sunset 8:14 pm	Sunset 8:13 pm	Sunset 8:12 pm	Sunset 8:11 pm	Sunset 8:10 pm	Sunset 8:09 pm	Sunset 8:07 pm
Last Light 8:46 pm	Last Light 8:45 pm	Last Light 8:43 pm	Last Light 8:42 pm	Last Light 8:41 pm	Last Light 8:40 pm	Last Light 8:38 pm

SUN 5 Aug	MON 6 Aug	TUE 7 Aug	WED 8 Aug	THU 9 Aug	FRI 10 Aug
First Light 5:20 am	First Light 5:21 am	First Light 5:23 am	First Light 5:24 am	First Light 5:25 am	First Light 5:26 am
Sunrise 5:51 am	Sunrise 5:52 am	Sunrise 5:53 am	Sunrise 5:54 am	Sunrise 5:55 am	Sunrise 5:56 am
Sunset 8:06 pm	Sunset 8:05 pm	Sunset 8:04 pm	Sunset 8:02 pm	Sunset 8:01 pm	Sunset 8:00 pm
Last Light 8:37 pm	Last Light 8:36 pm	Last Light 8:34 pm	Last Light 8:33 pm	Last Light 8:31 pm	Last Light 8:30 pm

Source: <http://sunrisesunset.willyweather.com/il/kane-county/st-charles.html>

Aerobic Mile Chart @ Q Center



Meals

Breakfast

2018 spring and summer MOD Items							
Item	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY	SUNDAY
Self Serve	Scrambled Eggs	Scrambled Eggs	Scrambled Eggs	Scrambled Eggs	Scrambled Eggs	Scrambled Eggs	Scrambled Eggs
Starch	Chef's Potatoes	hash browns	Chef's Potatoes	hash browns	Chef's Potatoes	Chef's Potatoes	Chef's Potatoes
Protein	Hickory Smoked Bacon	Chicken Apple Sausage	Hickory Smoked Bacon	Chicken Apple Sausage	Hickory Smoked Bacon	Sausage Links	Hickory Smoked Bacon
Side	Pork Sausage Links	Hickory Smoked Bacon	Turkey Ham	Hickory Smoked Bacon	Pork Sausage Patties		
Side	Broccoli, Ham and Cheese Casserole	Bacon and Egg Breakfast cups	Corned Beef Hash	Spinach Quiche	Farmers Hash	Belgian Waffles	Pancakes
All Breakfast MOD's Include Bakery Breads and Pastries, Milk, Dry Cereal, Yogurt, Toast & Seasonal Cut Fruit. Freshly Brewed Regular and Decaffeinated Coffees, Specialty Teas, Milk, Assorted Juices, and Assorted Sodas.							

Lunch

2018 Spring and summer MOD Items							
LUNCH MOD - WEEK 1							
ITEM	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY	SUNDAY
Soup	Cream of Asparagus and Basil Soup	Chicken Noodle Soup	Beef Barley Soup	Tomato Basil Soup	Shrimp Bisque	Chef's Choice	Chef's Choice
Salad du Jour	Tossed Salad du Jour with 2 Dressings	Tossed Salad du Jour with 2 Dressings	Tossed Salad du Jour with 2 Dressings	Tossed Salad du Jour with 2 Dressings	Tossed Salad du Jour with 2 Dressings	Tossed Salad du Jour with 2 Dressings	Tossed Salad du Jour with 2 Dressings
Enhanced Salad (Add'l Charge)	Chopped Romaine with Peppers, Baby Corn and Balsamic Vinaigrette	Chopped Romaine with Black Beans, Corn, Tomato, Red Onion and Cilantro Lime Vinaigrette	Field Greens with Red Onion, Olives, Asparagus with Herb Vinaigrette	Iceberg Lettuce with Slice Turkey, Tomato, Bacon, Bleu Cheese and Sun-Dried Tomato Vinaigrette	Mixed Greens with Asparagus Tomato, Peppers, and Lemon Dill Vinaigrette	Chopped Romaine with Parmesan Cheese, Croutons and Caesar Dressing	Field Greens with Red Onion, Olives, Asparagus with Herb Vinaigrette
Vegetarian Option	Vegetarian Gratin	Vegetable Fajitas	Vegetable Pancit	Penne Pasta with Lentil Bolognese	Green Chili Corn Casserole	Chef's Choice	Chef's Choice
Entrée	Honey Mustard Glazed Artic Char	Seared Mahi with Spicy Papaya Relish	Tilapia in Hot and Sour Sauce	Sole Meuniere	BBQ Salmon with an Andouille Hash	Chef's Choice	Chef's Choice
Entrée	Potato Gnocchi with Vodka Sauce	Southwester Chicken Penne	Filipino Adobo Chicken	Flat Iron Steaks Smothered In Onions	Bang Bang Chicken	Chef's Choice	Chef's Choice
Starch	Basil and Brown Rice Pilaf	Arroz Verde	Garlic Rice	Roasted Potatoes	Fried Rice	Chef's Choice	Chef's Choice
Vegetable	Roasted Vegetables	Roasted Asparagus	Sautéed Squash	Sweet Poached Carrots	Sesame and Honey Glazed Carrots	Chef's Choice	Chef's Choice
Dessert	Chocolate Chunk Cookie	Triple Chocolate Cookie	Heath Crunch Cookie	White Choc. Mac. Nut Cookie	Chocolate Coconut Cookie	Assorted Cookies	Assorted Cookies
Enhanced Dessert (Add'l Charge)	Cherry Cake	Apricot Crumble Bar	Triple Chocolate Cake	Chocolate Crumble Bar	Lemon Crisp Bar	Chef's Choice	Chef's Choice

Note: All menu items are subject to change without notice.

The MOD lunches that are attached are VERY limited to what will be available in the dining room. This is only for the private meals which are based off of what is offered in the dining room. Please check the app daily to see the full menu selection.

Nourishment Hubs

	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
Serving Times	All Day	All Day	All Day	All Day	All Day	All Day	All Day
Flavored Waters	Cucumber / Kiwi	Watermelon	Orange	Pineapple / Basil	Lemon / Mint	Orange	Pineapple
Serving Times	7:30a-9:30a	7:30a-9:30a	7:30a-9:30a	7:30a-9:30a	7:30a-9:30a	7:30a-9:30a	7:30a-9:30a
	Homemade granola*	Homemade granola*	Homemade granola*	Homemade granola*	Homemade granola*	Homemade granola*	Homemade granola*
Serving Times	7:30a-11a	7:30a-11a	7:30a-11a	7:30a-11a	7:30a-11a	7:30a-11a	7:30a-11a
	Trail Mix*	Trail Mix*	Trail Mix*	Trail Mix*	Trail Mix*	Trail Mix*	Trail Mix*
Sliced Fresh Fruit	Watermelon	Honey Dew	Cantaloupe	Watermelon	Honey Dew	Cantaloupe	Honey Dew
Additional Sweet Item	Donut Holes	Donut Holes	Donut Holes	Donut Holes	Donut Holes	Donut Holes	Donut Holes
Morning Pastry	Gluten Free Mango Swirl Cake*	Mini Blueberry Muffins*	Gluten Free Marble Coffecake*	Mini Chocolate Chip Muffin*	Lemon Scone*	Chef's Choice	Chef's Choice
Baked Breakfast Bread	Chocolate Breakfast Bread*	Pineapple Coconut Bread*	Cherry Vanilla Bread*	Raspberry Orange Bread*	Banana Bread*	Banana Bread*	Cherry Vanilla Bread*
Baked Breakfast Item	Croissants with jam, whipped butter	Fresh baked biscuits w/ jam, whipped butter	Croissants with jam, whipped butter	Fresh baked biscuits w/ jam, whipped butter	Croissants with jam, whipped butter	Fresh baked biscuits w/ jam, whipped butter	Croissants with jam, whipped butter
Power bars	Peanut Butter and Oatmeal Energy Bar*	Chocolate Energy Bar*	Lemon Energy Bar*	Cashew & Apricot Bar*	Brownie Energy Bar*	Chef's Choice Energy Bar	Chef's Choice Energy Bar
Serving Times	9:30a-11a	9:30a-11a	9:30a-11a	9:30a-11a	9:30a-11a	9:30a-11a	9:30a-11a
Protein Item	Hard cooked eggs with hot sauce and salt & pepper	Hard cooked eggs with hot sauce and salt & pepper	Hard cooked eggs with hot sauce and salt & pepper	Hard cooked eggs with hot sauce and salt & pepper	Hard cooked eggs with hot sauce and salt & pepper	Hard cooked eggs with hot sauce and salt & pepper	Hard cooked eggs with hot sauce and salt & pepper
Serving Times	2p-5p	2p-5p	2p-5p	2p-5p	2p-5p	2p-5p	2p-5p
Kitchen Station	Agave Roasted Chickpeas*** Hummus Carrots	Garlic & Parm. Roasted Chickpeas Ranch Dip Cucumber Celery	Lime, Cumin & Cilantro Roasted Chickpeas Pico de Gallo Corn Tortilla Chips	Honey Cinnamon Roasted Chickpeas Peanut Butter Celery Sticks	Sweet & Spicy Roasted Chickpeas w/ Rosemary Nutella spread Cinnamon Sugar Crisps	Garlic & Parm. Roasted Chickpeas Ranch Dip Cucumber Celery	Honey Cinnamon Roasted Chickpeas Peanut Butter Celery Sticks
Serving Times	2p-5p	2p-5p	2p-5p	2p-5p	2p-5p	2p-5p	2p-5p
	Ice Cream Novelties						
Baked Goods	Chocolate Chip Cookie*	Sugar Cookie*	Chewy Chocolate Cookie*	M & M Cookie*	Oatmeal Raisin Cookie*	Sugar Cookie*	M & M Cookie*
Baked Treats	Orange Texas Sheet Cake*	Chocoalte Shortbread*	Rice Krispy Treats	Brownies*	Cherry Bar*	Rice Krispy Treats	Shortbread*
Fruit	Strawberries	Sliced Apples	Orange wedges	Strawberries	Grapes	Orange wedges	Grapes

Dinner

Food

Function: Dinner
Room: Fox River Ballroom 6
Time: 5:30 PM to 7:00 PM

MOD Dinner

Creamy Chipotle Potato Soup
 Tossed Greens Salad with Assorted Dressings
 Artisan Breads and Rolls with Butter

.....

Honey Ginger Crispy Tofu with Broccoli
 Herb Roasted Chicken
 Spicy Sesame Beef with Scallions

.....

Ginger Cilantro Rice
 Roasted Asparagus

.....

Lemon Bites
 Assorted Hot and Cold Beverages

.....

Menu items are subject to change without notice

Included in Package

Participant Introductions

Today (7/29) after the Dinner Talk

INSTRUCTIONS FOR PARTICIPANT INTRODUCTION SLIDE

- Section 1**
- Profile Picture** | Attach a recent photo
 - Name** | First, Last Name > Example: John Doe
 - Position** | Ph.D. Student, Postdoc, Engineer, etc.
 - Department, Institution** | > Example: Civil Engineering, Univ. of Houston, TX (USA)
 - University Logo and/or current Institutional Logo** (if you have one)

- Section 2**
- Scientific Field** | *Pull field from the list below*
 - Research Interests** | Name three (or more)
 - Personal Interests** | Name two (or more)

- Section 3**
- Graphic** | Attach a jpeg, png, tiff or an editable file of an image of your choice about your work

List of Scientific Fields

- Biological Sciences, Bioinformatics
- Biological Sciences, Biophysics
- Biological Sciences, Medical Science
- Biological Sciences, Neuroscience
- Biological Sciences, Proteomics
- Biological Sciences, Systems Biology
- Chemistry, General
- Chemistry, Biochemistry
- Chemistry, Catalytic
- Chemistry, Combustion
- Chemistry, Environmental
- Chemistry, Geochemistry
- Chemistry, Inorganic
- Chemistry, Organic
- Chemistry, Physical
- Chemistry, Quantum Chemistry
- Computer Science
- Earth Science, Environmental Sciences
- Earth Science, Agricultural Sciences
- Earth Science, Climate Research
- Earth Science, Geological Sciences
- Economics
- Engineering, Material Response
- Engineering, Heat Transfer
- Engineering, Aerodynamics
- Engineering, Fluid-Structure Interaction
- Engineering, Fluids and Turbulence
- Fusion Energy, Inertial Fusion
- Fusion Energy, Magnetic Fusion
- Materials Science, Condensed Matter and Materials Physics
- Materials Science, Materials Discovery, Design, and Synthesis
- Materials Science, Nanoelectronics
- Materials Science, Nanomechanics
- Materials Science, Nanophotonics
- Materials Science, Nanoscience
- Nuclear Energy
- Physics, Accelerator Physics
- Physics, Astrophysics
- Physics, Atomic/Molecular Physics
- Physics, Condensed Matter Physics
- Physics, High Energy Physics
- Physics, Nuclear Physics
- Physics, Space Physics
- Physics, Particle Physics
- Physics, Plasma Physics
- Energy Technologies, Bioenergy
- Energy Technologies, Wind Energy
- Energy Technologies, Solar Energy
- Energy Technologies, Energy Efficiency
- Energy Technologies, Energy Storage
- Energy Technologies, Energy Grid
- Mathematics

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Section 1



John Doe

Ph.D. Student
Civil Engineering, University of Houston
Houston, TX (USA)



Section 2

Scientific Field | Mathematics

Research Interests

- Subsurface flow and transport
- Finite Element Methods
- High-Performance Computing

Personal Interests

- Tennis
- Fishing

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Section 3





Marta García Martínez

Principal Project Specialist – Computational Science
Argonne National Laboratory
Argonne, IL (USA)



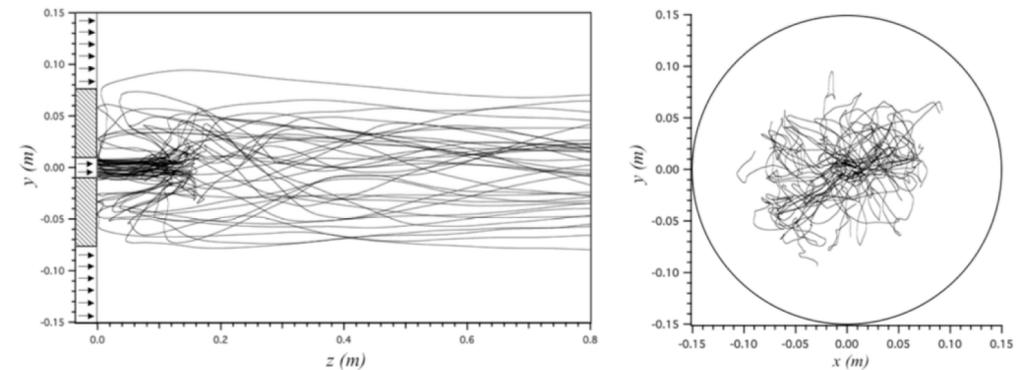
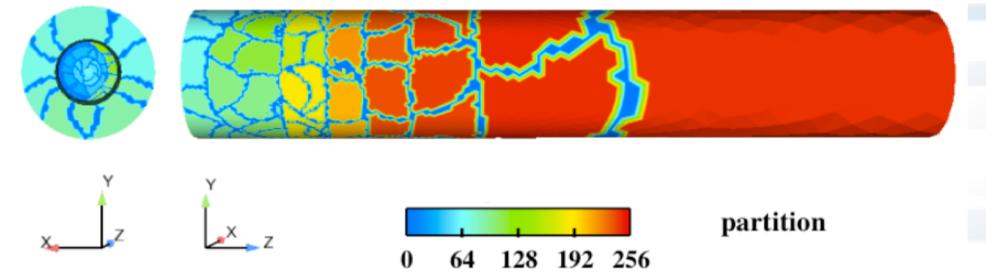
Scientific Field | Computational Fluid Dynamics

Research Interests

- Two-phase Flows
- High-Performance Computing
- Partitioning Algorithms

Personal Interests

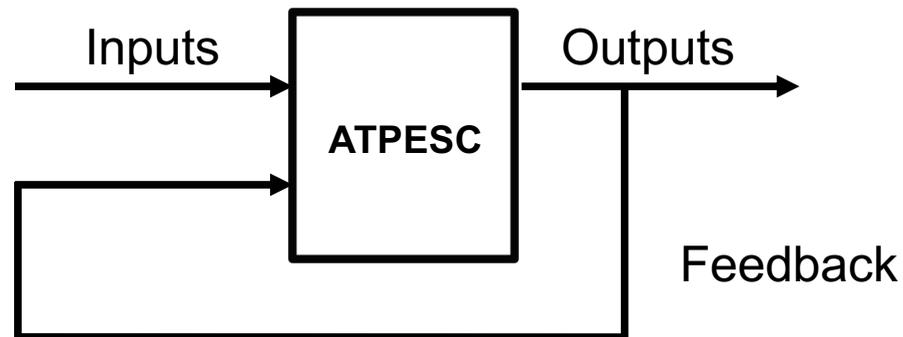
- Reading
- Traveling



Feedback

Help us improve the training program

- Track evaluations
- Overall program evaluation
- Conversations or emails to any of us



- **Tour of Argonne**
- **More hands-on exercises during lectures**
- **Participant introductions**

Whom to ask for help on-site

- **Administration**

- Office: Sue Gregurich (week 1) or Teresa Rodriguez (week 2)
Or by email to your ATPESC Contact Person

- **Computing issues**

- **User Services:** Liza Booker / Robert Scott / Avanthi Madduri
- **Operations:** Adam Scovel / Ben Lenard / John ‘Skip’ Reddy
Or by email to support@alcf.anl.gov

- **General**

- Marta García
Or by email to support@extremecomputingtraining.anl.gov

Acknowledgments

Exascale Computing Project



EXASCALE COMPUTING PROJECT

Website: <https://exascaleproject.org>

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- This research used resources of the **National Energy Research Scientific Computing Center**, a DOE Office of Science User Facility supported by Office of Science of the U.S. Department of Energy under Contract DE-AC02-05CH11231

Thank you for your attention!

& for taking two weeks of your summer to participate in this program

Questions ? ? ? ? ?

