

Welcome

May 7-9, 2018

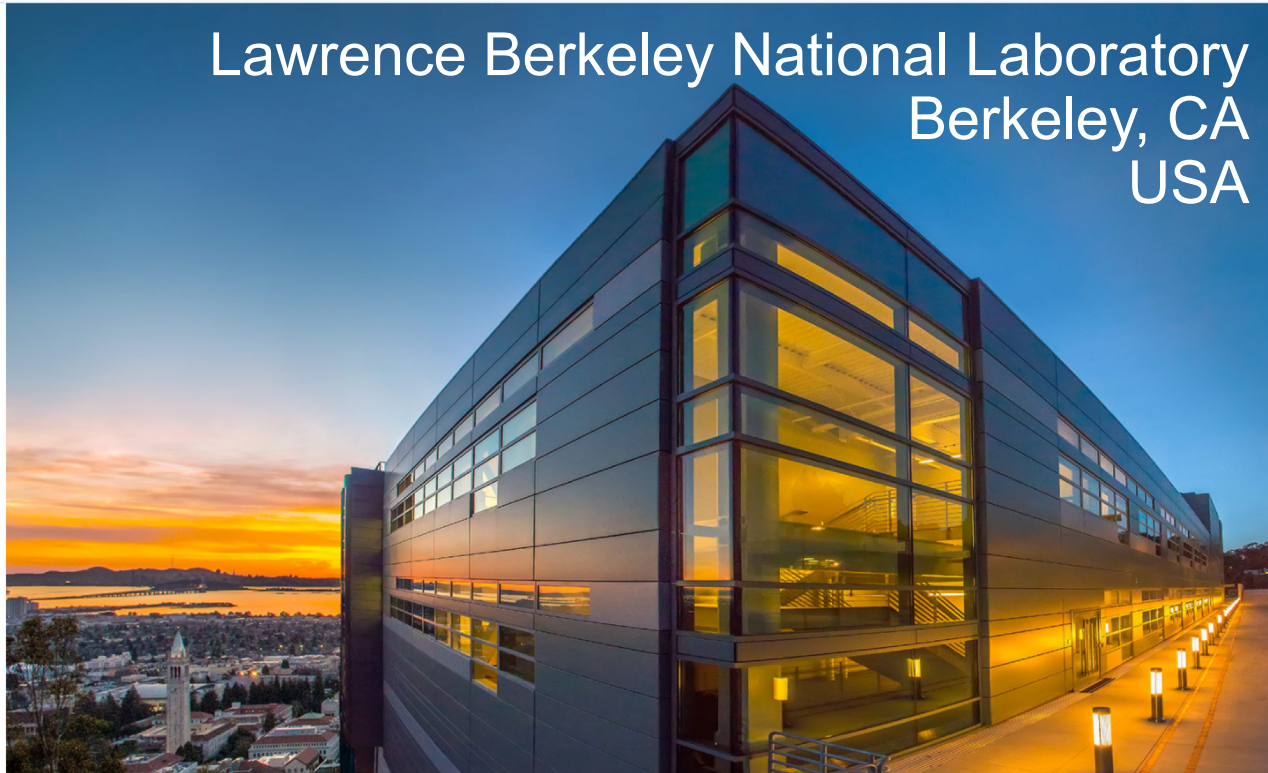
to the 1st



workshop

Wim Leemans
Director, ATAP Division

Lawrence Berkeley National Laboratory
Berkeley, CA
USA



U.S. DEPARTMENT OF
ENERGY

Office of
Science

ACCELERATOR TECHNOLOGY &
APPLIED PHYSICS DIVISION



The background image shows a modern building with large glass windows and a dark facade, identified as Shyh Wang Hall. The building is illuminated from within, and its reflection is visible in the glass. In the background, a cityscape is visible under a sunset sky with orange and blue hues. A prominent church steeple is visible in the lower left background.

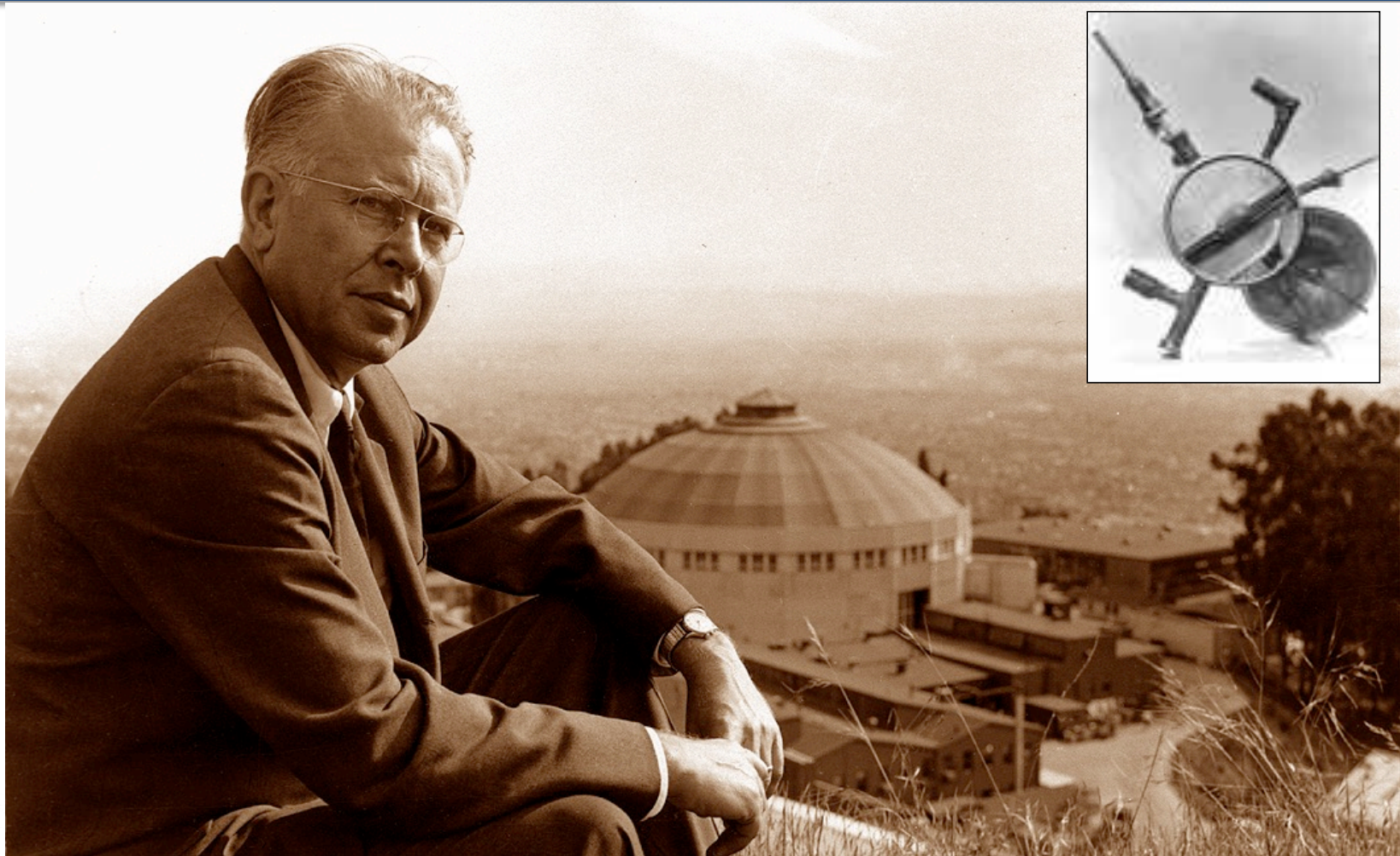
Shyh Wang Hall Safety Minute

- **In the event of a fire**, horn/strobes will activate. Evacuate immediately.
- **In the event of an earthquake** Drop to floor, Cover, and Hold on to something solid until the shaking stops. Once shaking has stopped, evacuate.
- Follow instructions of Building Emergency Team members (orange vests) who will direct you to the Assembly Area.

Evacuation Routes



**Founded in 1931 on Berkeley Campus
Moved to Current Site in 1940**



Lawrence's Successful Legacy of Team Science



Nearly 90 Years of World-Leading Team Science at Lawrence Berkeley National Laboratory



- **Managed and operated by UC for the U.S. Department of Energy**
- **>200 University of California faculty on staff at LBNL**
- **4200 Employees, ~\$900M/year Budget**
- **13 Nobel Prizes**
- **63 members of the National Academy of Sciences (~3% of the Academy)**
- **18 members of the National Academy of Engineering, 2 of the Institute of Medicine**



Laboratory Director M.S. Witherell

M.T. BRANDT
Deputy Director for
Operations

H.D. SIMON
Deputy Director for
Research

J.A. Blair, Laboratory Counsel

M.K. Dick, Chief of Staff

J.D. Elliott, Sustainability Officer

A. Flores, Department Head, Internal Audit

J. German, Chief Communications Officer

D. Medley, Head of Government and Community Relations

E. Quaiter-Randall, Chief Technology Transfer Officer

T. Triplett, Interim Director, Institutional Assurance and Integrity

K.P. Williams, Chief Financial Officer

SCIENCE

ALS-U

D. ROBIN, ALS-Upgrade Project Director

BIOSCIENCES

M.E. MAXON
Associate Laboratory Director

BIOLOGICAL SYSTEMS & ENGINEERING

B.A. Simmons
Division Director

DOE JOINT GENOME INSTITUTE

N.J. Mouncey
Facility Director

ENVIRO. GENOMICS & SYSTEMS BIOLOGY

N.L. Glass
Division Director

MOLECULAR BIOPHYSICS & INTEGRATED BIOIMAGING

P.D. Adams
Division Director

COMPUTING SCIENCES

K.A. YELICK
Associate Laboratory Director

COMPUTATIONAL RESEARCH

D.L. Brown
Division Director

NAT. ENERGY RESEARCH SCIENTIFIC COMPUTING CENTER (NERSC)

S.S. Dosanjh
Division Director

SCIENTIFIC NETWORKING (ESNET)

I.S. Monga
Division Director

EARTH & ENVIRONMENTAL SCIENCES

S.S. HUBBARD
Associate Laboratory Director

CLIMATE & ECOSYSTEM SCIENCES

W.D. Collins
Division Director

ENERGY GEOSCIENCES

J.T. Birkholzer
Division Director

ENERGY SCIENCES

J.B. NEATON
Associate Laboratory Director

ADVANCED LIGHT SOURCE

S.D. Kevan
Interim Division Director

CHEMICAL SCIENCES

K. Wilson
Interim Division Director

MATERIALS SCIENCES

M. Asta
Division Director

MOLECULAR FOUNDRY

J.B. Neaton
Division Director

ENERGY TECHNOLOGIES

R. RAMESH
Associate Laboratory Director

BUILDING TECHNOLOGY & URBAN SYSTEMS

M.A. Piette
Division Director

ENERGY ANALYSIS & ENVIRONMENTAL IMPACTS

T. Kirchstetter
Division Director

ENERGY STORAGE & DISTRIBUTED RESOURCES

R. Prasher
Division Director

CYCLOTRON ROAD

I. Gur
Division Director

PHYSICAL SCIENCES

T.J. SYMONS
Associate Laboratory Director

ACCELERATOR TECH & APPLIED PHYSICS.

W. Leemans
Division Director

ENGINEERING

H. von der Lippe
Division Director

NUCLEAR SCIENCE

B.V. Jacak
Division Director

PHYSICS

N.A. Roe
Division Director

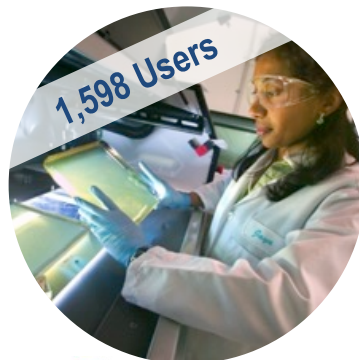
Berkeley Lab User Facilities

Enabling breakthroughs across the sciences

FY2017



 **ADVANCED LIGHT SOURCE**



JGI  **JOINT GENOME INSTITUTE**
A DOE OFFICE OF SCIENCE USER FACILITY



NERSC National Energy Research
Scientific Computing Center

 **ESnet**
ENERGY SCIENCES NETWORK

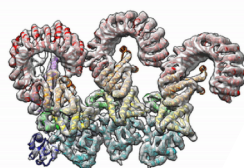


**MOLECULAR
FOUNDRY** 

Lab-wide Strategic Research Priorities 2018



SCIENCE
AT THE
BIOCAMPUS



BREAKTHROUGH SCIENCE AT
THE EXASCALE



INFRASTRUCTURE
RENEWAL



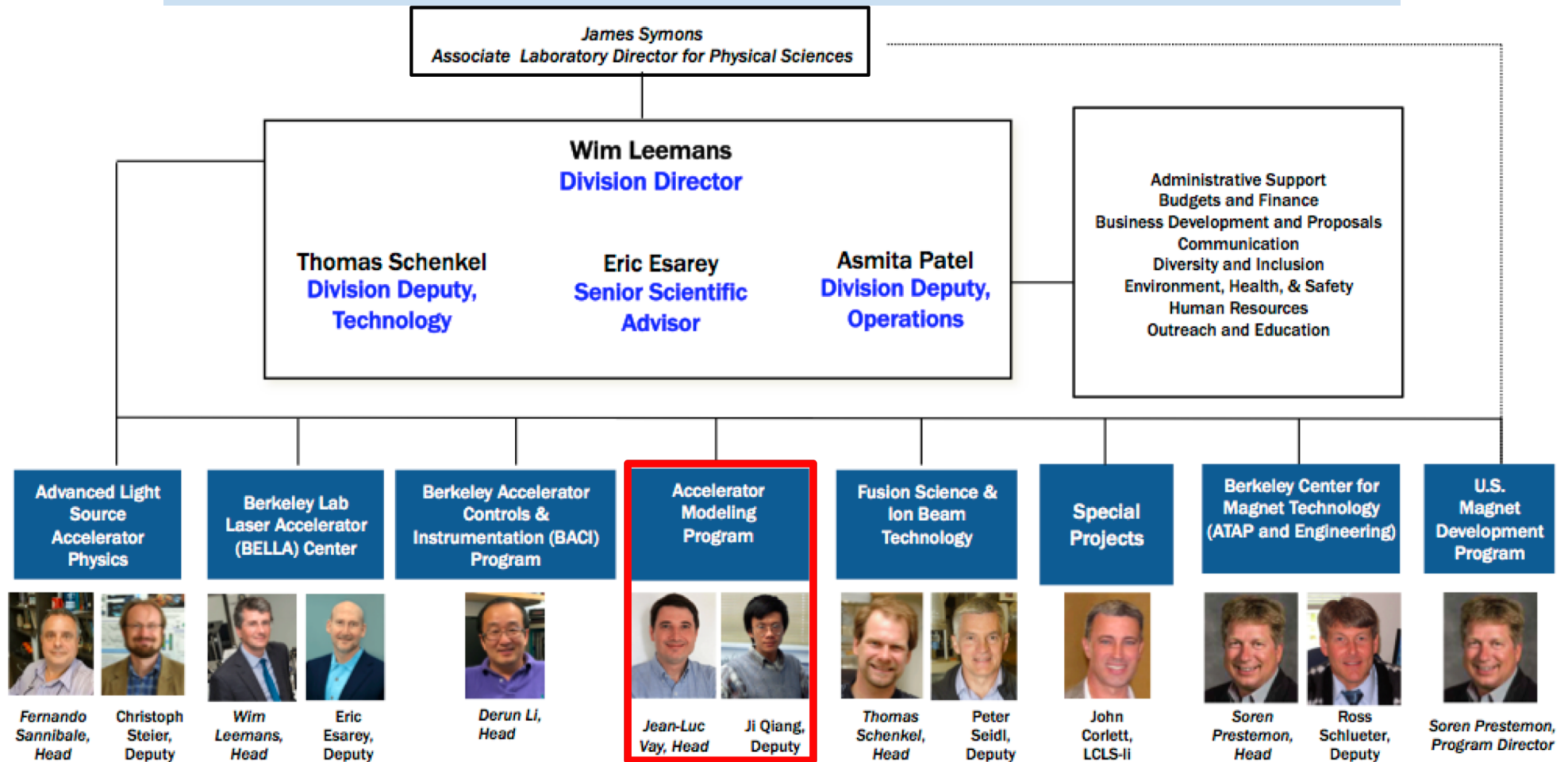
SCIENCE WITH
THE UPGRADED ADVANCED
LIGHT SOURCE



DISCOVERY SCIENCE IN
FUNDAMENTAL PHYSICS



Accelerator Technology and Applied Physics Division



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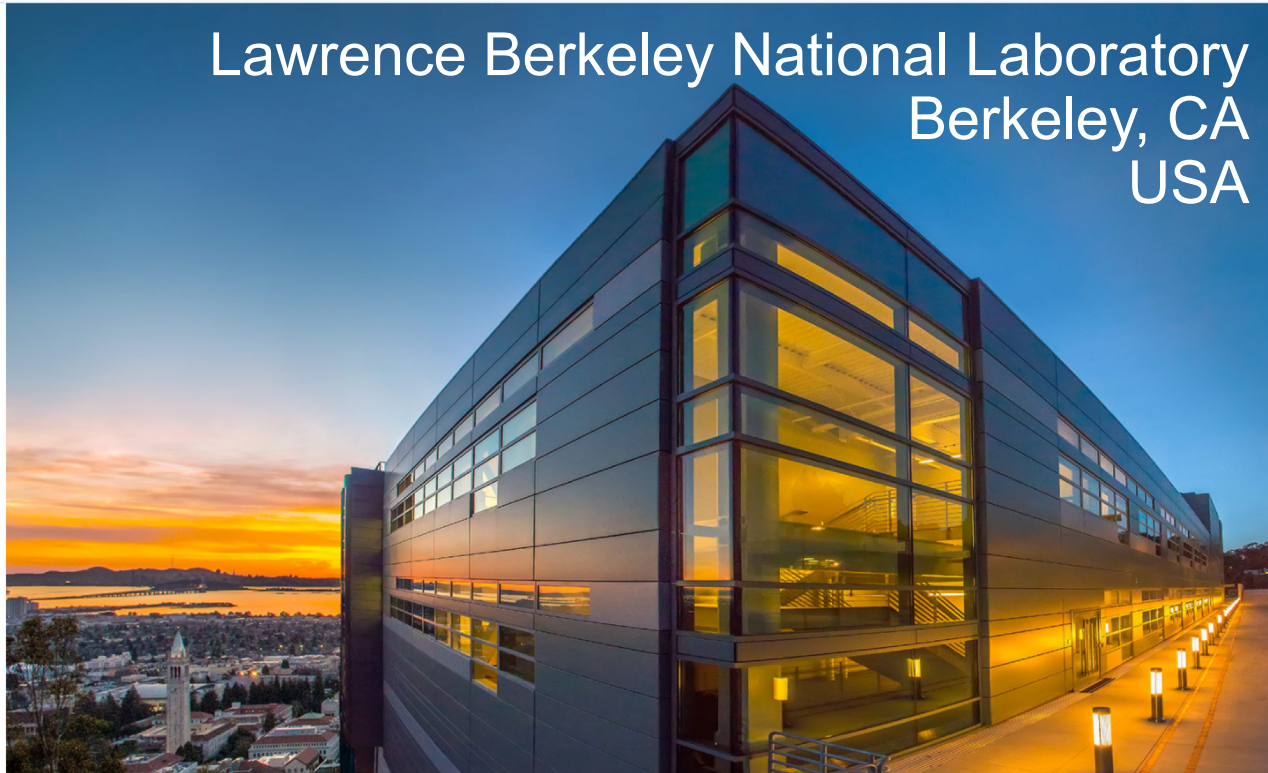
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Jean-Luc Vay
Head AMP, ATAP Division

Lawrence Berkeley National Laboratory
Berkeley, CA
USA



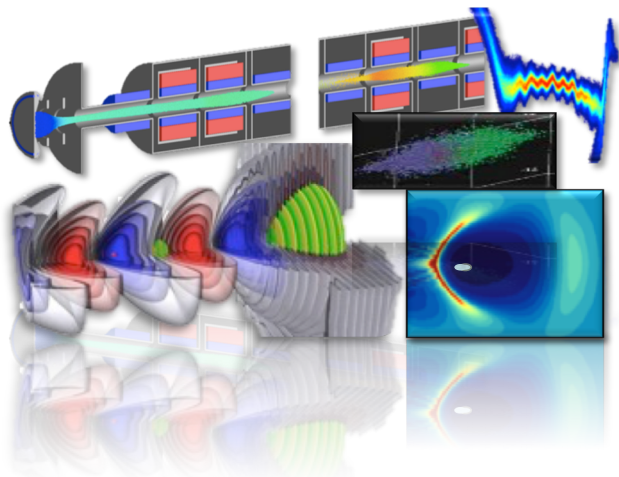
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ATAP

AMP is home of “BLAST” simulation toolset for conventional & advanced concepts accelerators



State-of-the-art simulation tools*:

- **Multi-physics frameworks:** IMPACT, Warp, WarpX.
- **Specialized codes:** BeamBeam3D, FBPIC, LW3D, POSINST.
- **Libraries:** PICSAR.

Wide set of physics & components:

- beams, plasmas, lasers, structures, beam-beam, e^- clouds, ...
- linacs, rings, injectors, traps, ...

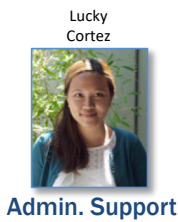
At the forefront of computing:

- **novel algorithms:** boosted frame, particle pushers, etc.
- SciDAC, INCITE, NESAP, DOE Exascale.

*Most codes open source, available at blast.lbl.gov or upon request.

LBNL ATAP Accelerator Modeling Program

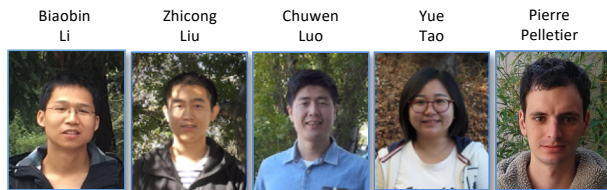
Scientific Staff



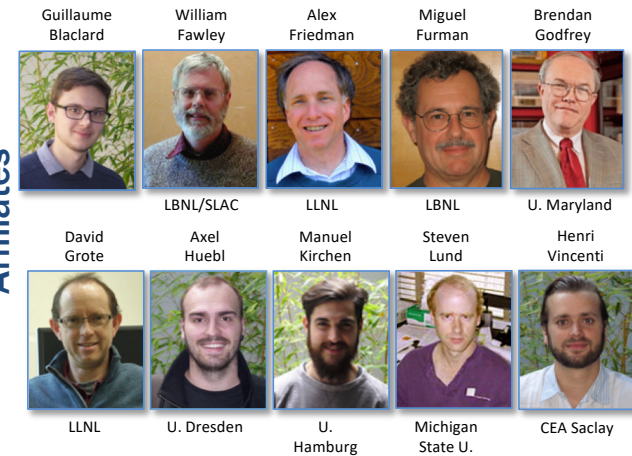
Postdocs



Students



Affiliates



Reminders

Shyh Wang Hall

- *Be respectful of open office areas*
- *Hold discussions in conference rooms. Not hallways*
- *Do not use building break room*
- *Clean up after yourself*

Banquet Dinner on Tuesday Evening

- *Pay at registration desk. Cash only*
- *Bring your banquet ticket*
- *Last Shuttle uphill leaves @ 9:19 PM*

