WELCOME TO CHICAGO!

JOHN BYRD AND SAM POSEN
Argonne National Laboratory
Fermi National Accelerator Laboratory

LOCAL ORGANIZING COMMITTEE

Co-CHAIRS

Sam Posen
Fermilab

John Byrd
Argonne National Laboratory

Scientific Program Chair

Marion White

Argonne National Laboratory

Local Organizing Committee Chair

Kent Wooton

Argonne National Laboratory

Anita Garcia, ANL
Lynnean Celmer, ANL
Charles Thangaraj, FNAL (Industry/vendors)
Tammy Gloss, FNAL
Kathy Harkay, ANL (WISE)
Branko Popovic, ANL (Students)
Kelly Jaje, ANL (Editorial Chair)
Denise Skiadopoulos, ANL
Cathy Eyberger, ANL

INTERNATIONAL ORGANIZING COMMITTEE

Provides overall guidance for the LINAC conference

John Byrd (Argonne National Laboratory, United States)
John Barnard (Lawrence Livermore National Laboratory)
Winfried Barth (GSI)
Dan Berkovits (Soreq Nuclear Research Center, Israel)
Graeme Burt (Lancaster University, United Kingdom)
Enrica Chiadroni (Istituto Nazionale di Fisica Nucleare, Italy)
Eric Colby (Department of Energy, United States)
Hakan Danared (European Spallation Source, Sweden)
Jean Delayen (Old Dominion University, United States)
Alberto Facco (Istituto Nazionale di Fisica Nucleare, Italy)
Robert Garnett (Los Alamos National Laboratory, United States)
Terry Garvey (Paul Scherrer Institut, Switzerland)
Pei Guoxi (Institute of High Energy Physics, China)
Kevin Jones (European Spallation Source, Sweden)
Heung-Sik Kang (Pohang UST, Korea)
Dinakar Kanjilal (Inter-University Accelerator Centre, India)
Shigeru Kashiwagi (Tohoku Univerity, Japan)
Robert Laxdal (TRIUMF, Canada)
Peter McIntosh (IOC Chair, United Kingdom)
Hidetomo Oguri (Japan Atomic Energy Agency, Japan)
Peter Ostroumov (Michigan State University, United States)
Nicolas Pichoff (French Alternative Energies and AEC, France)
Fulvia Pilat (Oak Ridge National Laboratory, United States)
Milorad Popovic (Fermi National Accelerator Laboratory, United States)
Deepak Raparia (Brookhaven National Laboratory, United States)
Tor Raubenheimer (SLAC National Accelerator Laboratory, United States)
Ulrich Ratzinger (Goethe Universität Frankfurt, Germany)
Masanori Satoh (High Energy Accelerator Research Organization, Japan)
Stan Schriber (By-laws Host) (MSU (Retired), United States)
John Seeman (SLAC National Accelerator Laboratory, United States)
Alessandro Variola (Istituto Nazionale di Fisica Nucleare, Italy)
Maurizio Vretenar (CERN, Switzerland)
Yoshishige Yamazaki (MSU, United States)
Hans Weise (Deutsches Elektronen-Synchrotron, Germany)
Carsten Welsch (University of Liverpool, United Kingdom)
Marion White (Argonne National Laboratory, United States)

SCIENTIFIC PROGRAM COMMITTEE

LINAC 2024 CHICAGO

The LINAC24 program looks fantastic!

Marion White (Argonne National Laboratory)
Alexander Aleksandrov (Oak Ridge National Laboratory)
Sandra Biedron (University New Mexico)
Kip Bishofberger (Los Alamos National Laboratory)
Graeme Burt (Cockcroft Institute)
John Byrd (Argonne National Laboratory)
Enrica Chiadroni (Istituto Nazionale di Fisica Nucleare)
Yong-Sub Cho (Korea Atomic Energy Research Institute)
Stefan Choroba (Deutsches Elektronen-Synchrotron)
Paolo Craievich (Paul Scherrer Institut)
Jean Delayen (Old Dominion University)
Hiroyasu Ego (Institute of Modern Physics, CAS)
Alberto Facco (Istituto Nazionale di Fisica Nucleare)
Dan Faircloth (Rutherford Appleton Laboratory)
Robin Ferdinand (Grand Accélérateur Nat. d'Ions Lourds)
Shinian Fu (Institute of High Energy Physics)
Frank Gerigk (European Organization for Nuclear Research)
Anthony Gonsalves (Lawrence Berkeley National Laboratory)
Lars Groening (GSI)
Edda Gschwendtner (CERN)
Yuan He (Institute of Modern Physics, CAS)
Dong-O Jeon (Institute for Basic Science)
Walid Kaabi (Laboratoire de l'Accélérateur Linéaire)
Osamu Kamigaito (High Energy Accelerator Research Organization)
Shigeru Kashiwagi (Tohoku University)
Sang-Ho Kim (Oak Ridge National Laboratory)
Geoffrey Krafft (Thomas Jefferson National Accelerator Facility)
Robert Laxdal (TRIUMF)
Matthias Liepe (Cornell University)
Yuanrong Lu (Peking University)
Catherine Madec (Commissariat à l'Energie Atomique)
Kinsho Michikazu (JPARC)
Peter Ostroumov (Michigan State University)
Yuji Otake (Spring-8)
Paolo Pierini (European Spallation Source)
Deepak Raparia (Brookhaven National Laboratory)
Tor Raubenheimer (SLAC National Accelerator Laboratory)
Alwin Schempp (Goethe Universität Frankfurt)
Nikolay Solyak (Fermi National Accelerator Laboratory)
Purushottam Srivastava (RRCAT)
Chuanxiang Tang (Tsinghua University in Beijing)
Sami Tantawi (SLAC National Accelerator Laboratory)
Dong Wang (Shanghai Institute of Applied Physics)
Hans Weise (Deutsches Elektronen-Synchrotron)
Leo Weissman (Soreq Nuclear Research Center)
Vyacheslav Yakovlev (Fermi National Accelerator Laboratory)
Yoshishige Yamazaki (Michigan State University)

THANK YOU VENDORS

LINAC 2024 CHICAGO

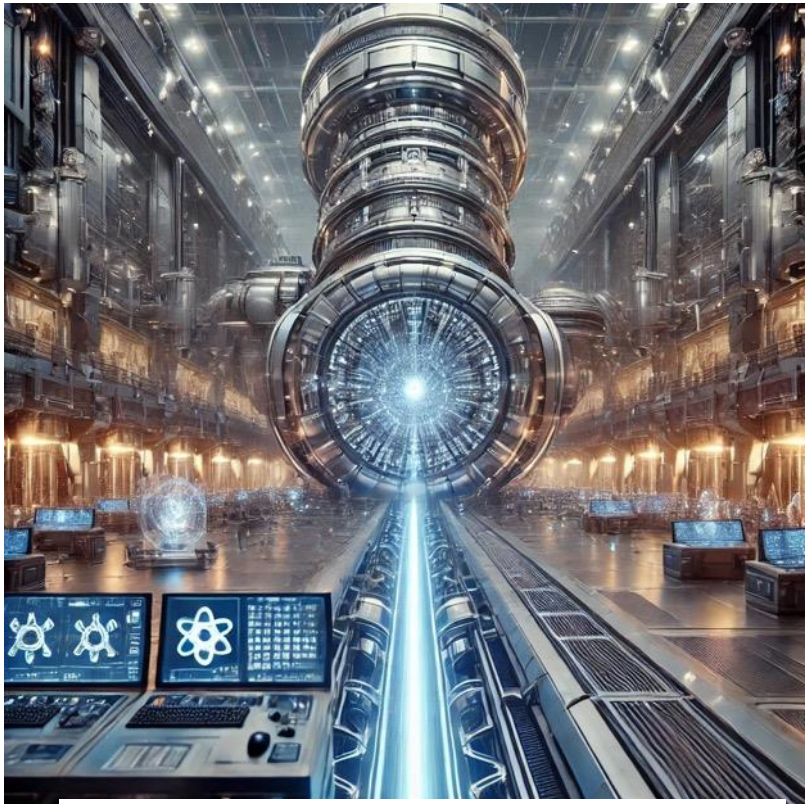
We can't build anything without you! Please visit the vendors, delegates….

Your Success. Our Passion.

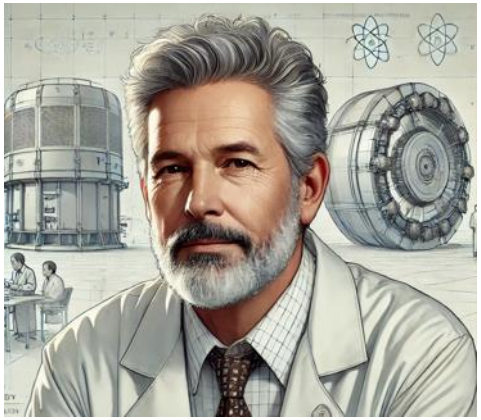
Muons, Inc.

Fermilab Argonne NATIONAL LABORATORY

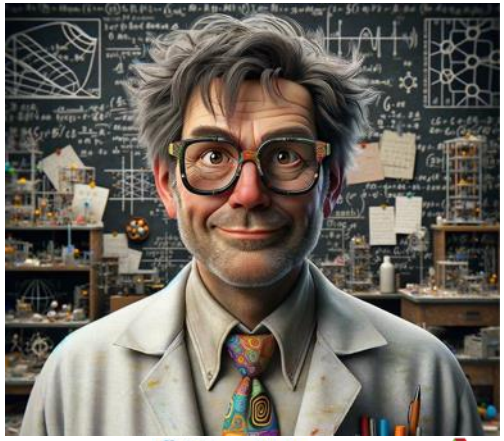
WHAT DOES CHATGPT THINK?



Prompt: *“Show me the ultimate linear accelerator”*



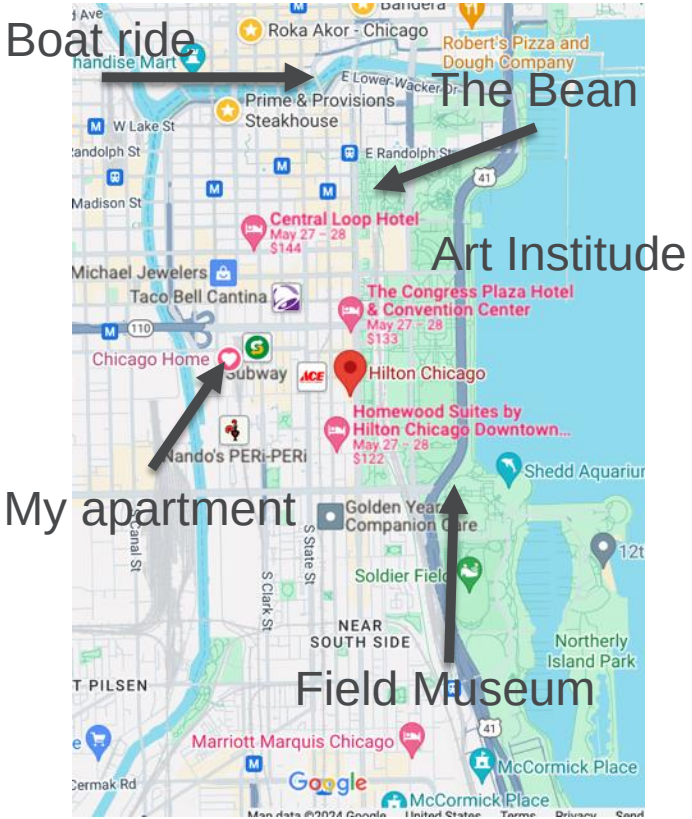
Prompt: *“What does the LINAC24 Chair look like?”*



Prompt: *“What does the LINAC24 Chair really look like?”*

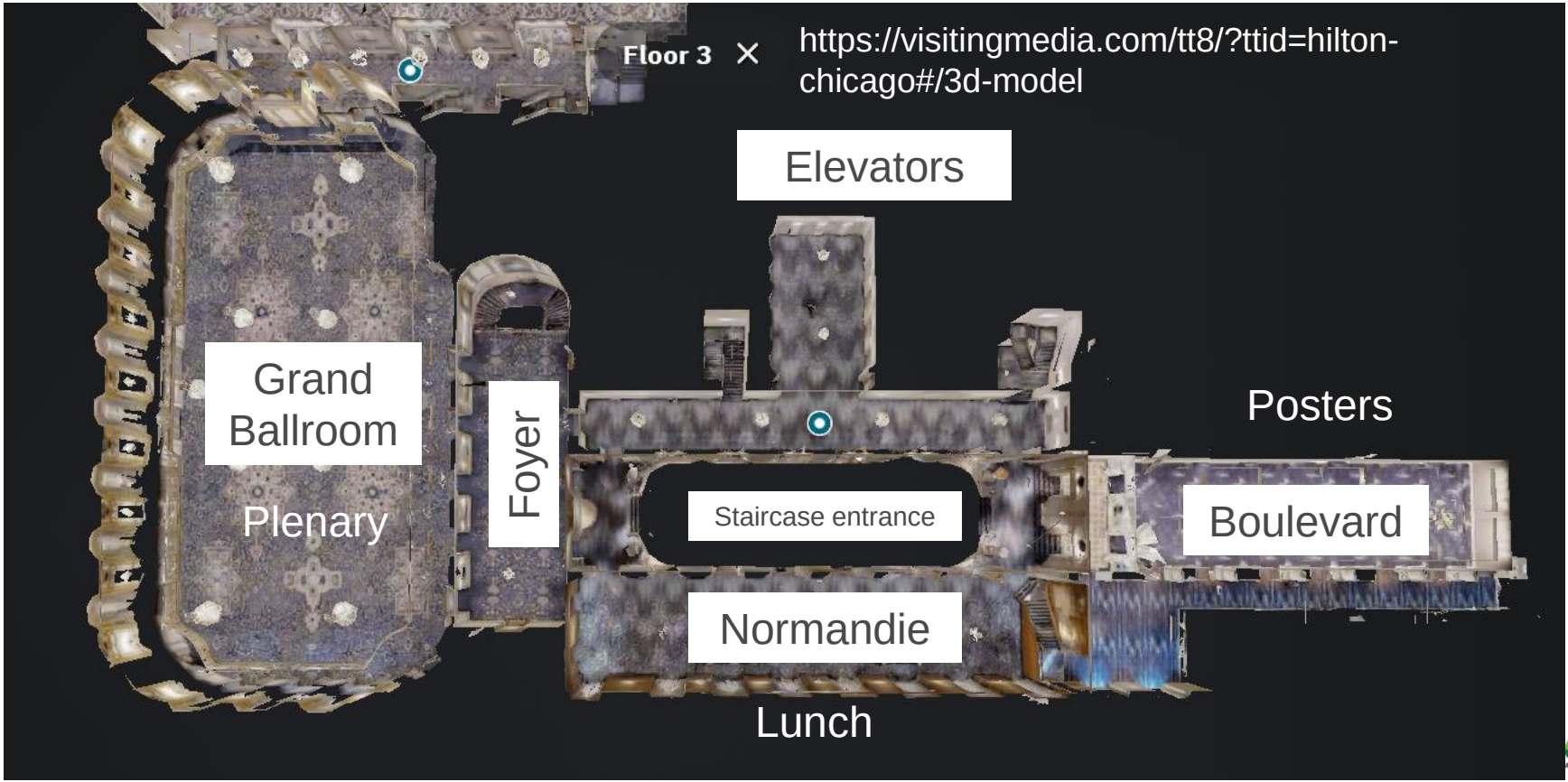
WHERE ARE WE?: CHICAGOLAND IS HOME TO ARGONNE AND FERMILAB

ANL and FNAL are deep in the suburbs



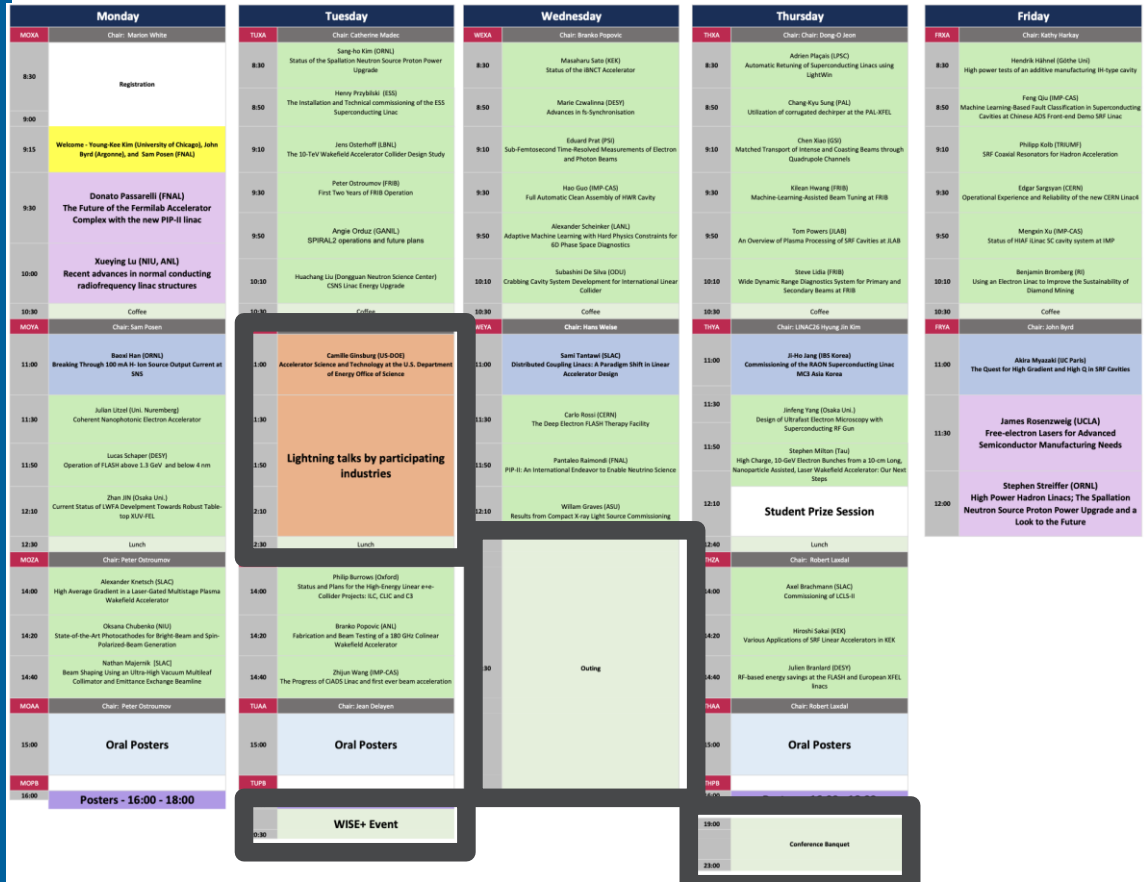
VENUE FLOOR PLAN

All rooms on a single floor. Elevator access from ground and room levels.



WHAT TO EXPECT THIS WEEK

More details to come as we move forward



- DOE-HEP talk followed by vendor lightning talks on Tuesday
- WISE+ event Tuesday evening
- Chicago River Cruise/out Wed afternoon
- Banquet on Thursday evening (live Blues music and DJ/dancing)
- Conference ends promptly by 1 PM on Friday (another event happens Friday evening)

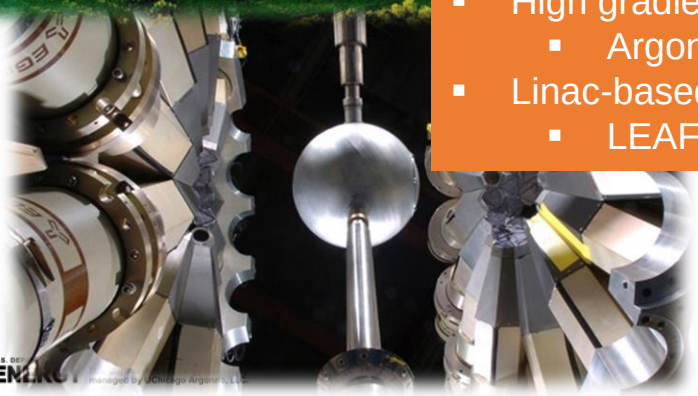
THESE ARE EXCITING TIMES FOR US

Recent highlights in the accelerator community with emphasis on domestic projects

- First light at LCLS-II, the first high-power XFEL and significant progress on SHINE.
- Progress on PIP-II as proton driver for LBNF/DUNE
- Multi-MW power upgrade for the SNS is nearing completion with several other high power proton drivers worldwide, including ADS.
- New P5 (Particle Physics Project Prioritization Panel) Report has been issued with US plans for HEP.
- The Electron-Ion Collider at Brookhaven has CD-1 approval
- The Advanced Photon Source Upgrade (APS-U) has successfully commissioned and is serving users. Uses MBA lattice technology to achieve ~40 pm emittance. Many other similar light sources under construction, design, or planning.
- Many new and expanding industrial applications for linacs, including new applications in the semiconductor and medical isotope industry.

ARGONNE'S ACCELERATOR PORTFOLIO

Accelerator-based facilities in high energy and nuclear physics and light sources



Accelerator science and technology:

- Storage ring light source
  - APS Upgrade
- Superconducting RF technology
  - ATLAS
- High gradient wakefield technology
  - Argonne Wakefield Accelerator
- Linac-based isotope production
  - LEAF

MANY ACCELERATOR HIGHLIGHTS COMING OUT OF ARGONNE

LINAC 2024 CHICAGO

You will hear more about some of these during the conference

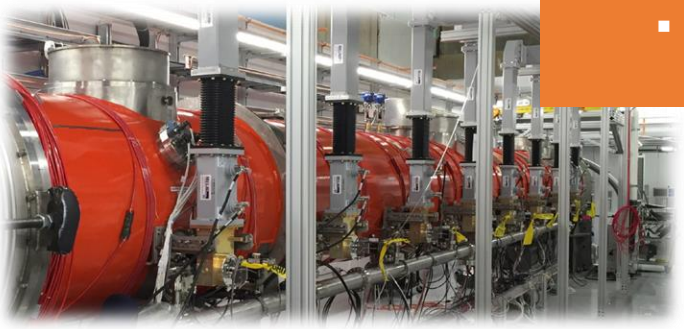
- Commissioning of the new APS Upgrade is now complete and operating for users. AP-U stands as the world's brightest ring-based light source (for now!). Using multibend achromat lattice technology, the measured emittance of ~40 pm is where we expect. The next year will focus on turning on new beamlines and improving operations.
- The AWA supports R&D into high gradient NCRF structures. A breakthrough over the past few years shows very high gradients possible (>400 MV/m) with ultrashort RF pulses (~10 nsec).
- ATLAS supports heavy ion nuclear physics with it's SCRF linac. They are moving to multiuser operation.
- LEAF performs research into the production of radioisotopes and uses a low energy electron beam (50 MeV/25 kW) to irradiate samples for isotope production.

FERMILAB'S ACCELERATOR PORTFOLIO

Accelerator-based facilities for high energy physics and accelerator science and technology R&D

Accelerator science and technology:

- Fermilab accelerator complex
  - PIP-II, ACE-MIRT, ACE-BR
- Production of advanced components
  - PIP-II, AUP, HE, Mu2e, PPU…
- Accelerator R&D
  - SRF, magnets, beam physics, high power targets



MANY ACCELERATOR HIGHLIGHTS COMING OUT OF FERMILAB

LINAC 2024 CHICAGO

You will hear more about these during the conference

- The Fermilab accelerator complex is the backbone of accelerator-based research at Fermilab including neutrino- and muon-based experiments. Achieved ~1 MW of proton power for the first time this year.
- PIP-II is a superconducting linac under construction that will enable the next era of science at Fermilab including LBNF/DUNE
- Important accelerator R&D advances in SRF, magnets, beam physics, and targets
- Production of state-of-the-art accelerator components for PIP-II, HL-LHC-AUP (first cryoassembly delivered this year), LCLS-II-HE, Mu2e, SNS PPU, LBNF/DUNE…
- Exciting plans for the future of the Fermilab accelerator complex beyond PIP-II including ACE-MIRT to increase proton power on target to 2 MW and ACE-BR to replace the booster for reliability, a broader physics program, and as a platform for a possible future multi-TeV muon collider

CODE OF CONDUCT

Please be respectful of everyone here at the conference

The LINAC2024 local organizing committee is committed to providing a safe working environment, and promoting respect, equity and balance. LINAC2024 is also committed to upholding the highest ethical standards in all of its activities. We expect conference attendees to comply with applicable laws and to conduct themselves responsibly, ethically and with integrity.

Compliance with this Code is mandatory for all attendees. LINAC2024 expects attendees to comply with both the letter and the spirit of this Code. Conduct that is illegal, dishonest or unethical constitutes a breach of this Code, whether or not the conduct is specifically addressed in this Code.

EMERGENCY NUMBER: You can reach 911 from a hotel phone by dialing 55 first.


ENJOY
CHICAGO,
LINAC 2024!

A WELCOME FROM YOUNG-KEE KIM

On behalf of University of Chicago, manager of Argonne and Fermilab

- Louis Block Distinguished Service Professor, Dept. of Physics, Enrico Fermi Institute, University of Chicago
- Senior Advisor to the Provost for Global Scientific Initiatives
- Fellow of the American Academy of Arts and Sciences (2017), the American Association for the Advancement of Science (2012), the American Physical Society (2004) and the Alfred P. Sloan Foundation (1997)
- Best known for experimental particle physics, Y2K also has deep interests in accelerator science and plays a leadership role in the NSF's Center for Bright Beams