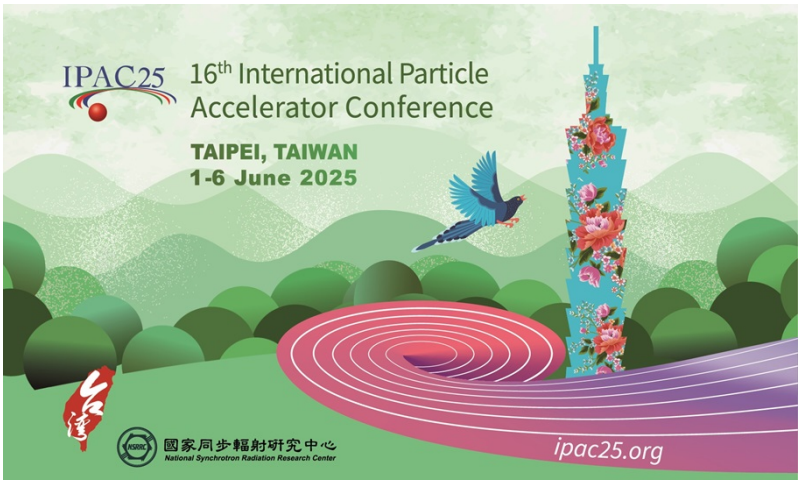
IPAC'25 - the 16th International Particle Accelerator Conferece



Sunday 1 June 2025 - Friday 6 June 2025

Taipei International Convention Center (TICC)

Scientific Programme

MC1 :Colliders and Related Accelerators

MC1 covers accelerators (e.g., synchrotrons, linacs, ERLs) and storage rings providing colliding beams of hadrons or leptons for particle and nuclear physics, including the associated Machine Detector Interface (MDI) region. This includes operating experience and performance limitations, upgrade plans, accelerator physics and technology issues specific to accelerators for particle and nuclear physics and the design and R&D for future projects.

MC1.A01 Hadron Colliders

MC1.A02 Lepton Circular Colliders

MC1.A03 Linear Lepton Colliders

MC1.A04 Circular Accelerators and Storage Rings

MC1.A07 Electrostatic Accelerators

MC1.A08 Linear Accelerators

MC1.A09 Muon Accelerators, Neutrino Factories, Muon

MC1.A10 Damping Rings

MC1.A11 Beam Cooling

MC1.A12 Fixed Field Accelerators (FFAs)

MC1.A16 Advanced Concepts

MC1.A17 High Intensity Accelerators

MC1.A18 Energy Recovery Linacs (ERLs)

MC1.A19 Electron-Hadron Colliders

MC1.A20 Radioactive Ions

MC1.A25 Beyond Colliders

MC1.A26 Machine Detector Interface

MC1.T12 Beam Injection/Extraction and Transport

MC1.T19 Collimation

MC2: Photon Sources and Electron Accelerators

MC2 covers photon sources (synchrotron light sources, ERLs, FELs, laser systems, THz sources, Compton sources, etc.) and electron accelerators (linear, circular, recirculating, etc.). It includes insertion devices such as planar and helical field undulators. Associated accelerator systems, such as injectors, booster synchrotrons, photon beam lines and photon beam line components can also be proposed for this classification.

MC2.A04 Circular Accelerators

MC2.A05 Synchrotron Radiation Facilities

MC2.A06 Free Electron Lasers (FELs)

MC2.A07 Electrostatic Accelerators

MC2.A08 Linear Accelerators

MC2.A18 Energy Recovery Linacs (ERLs)

MC2.A23 Other Linac Based Photon Sources

MC2.A24 Accelerators and Storage Rings, Other

MC2.A25 THz sources

MC2.A26 Compton sources

MC2.T02 Electron Sources

MC2.T12 Beam Injection/Extraction and Transport

MC2.T15 Undulators and Wigglers

MC2.T25 Lasers

MC2.T26 Photon Beam Lines and Components

MC3: Novel Particle Sources and Acceleration Techniques

MC3 covers (i) novel and unconventional sources of particles, including electrons and protons, neutrons, ions, and secondary particles and antiparticles; and (ii) new concepts of accelerating techniques which may overcome the present limitations of size and/or cost or which give access to very new beam characteristics (e.g., laser and beam driven plasma wakefield accelerators, structure wakefield accelerators, and ultra-high gradient accelerators). Novel here refers to technologies or parameters that are not yet widely used in operation.

MC3.A09 Muon Accelerators, Neutrino Factories, Muon Colliders

MC3.A12 Fixed Field Accelerators (FFAs)

MC3.A15 New Acceleration Concepts and Techniques

MC3.A16 Advanced Concepts

MC3.A17 High Intensity Accelerators

MC3.A20 Radioactive Ions

MC3.A21 Secondary Beams

MC3.A22 Plasma Wakefield Acceleration

MC3.T01 Proton and Ion Sources

MC3.T02 Electron Sources

MC3.T25 Lasers

MC3.T28 Neutron Sources

MC4: Hadron Accelerators

MC4 covers design, development, construction, commissioning, operation and upgrades of low, medium and high energy hadron accelerators, excluding hadron colliders. This includes ion sources, electrostatic accelerators, proton and ion linear accelerators, proton and ion synchrotrons, radioactive beam facilities, antiproton accumulators and collectors, ion accumulators and storage rings, cyclotrons, synchrocyclotrons, FFAs and any other similar machines. Both low and high intensity machines are covered, as are all relevant aspects of high intensity fixed target accelerators such as proton or light ions drivers for neutron sources, neutrino factories, etc.

MC4.A04 Circular Accelerators

MC4.A07 Electrostatic Accelerators

MC4.A08 Linear Accelerators

MC4.A09 Muon Accelerators, Neutrino Factories, Muon Colliders

MC4.A11 Beam Cooling

MC4.A12 Fixed Field Accelerators (FFAs)

MC4.A13 Cyclotrons

MC4.A14 Neutron Spallation Facilities

MC4.A16 Advanced Concepts

MC4.A17 High Intensity Accelerators

MC4.A20 Radioactive Ions

MC4.A21 Secondary Beams

MC4.A24 Accelerators and Storage Rings, Other

MC4.T01 Proton and Ion Sources

MC4.T12 Beam Injection/Extraction and Transport

MC4.T19 Collimation

MC4.T20 Targetry and Dumps

MC4.T28 Neutron Sources

MC4.T32 Ion Beam Stripping

MC5: Beam Dynamics and EM Fields

MC5 covers general aspects of electro-magnetic interactions of charged particle beams in accelerators and storage rings. This includes linear and nonlinear beam optics, modeling of externally applied or beam generated electro-magnetic fields, as well as theory, observations and simulations of single particle dynamics and collective effects, both coherent and incoherent. The emphasis is on deepening the understanding of fundamental processes or limitations governing beam dynamics and uncovering possible new mechanisms relevant to accelerator design and performance, independent of technological or project specific aspects.

MC5.D01 Beam Optics Lattices, Correction Schemes, Transport

MC5.D02 Nonlinear Single Particle Dynamics Resonances, Tracking, Higher Order, Dynamic Aperture, Code Developments

MC5.D03 Calculations of EM fields Theory and Code Developments

MC5.D04 Beam Coupling Impedance Theory, Simulations, Measurements, Code Development

MC5.D05 Coherent and Incoherent Instabilities Theory, Simulations, Code Development

MC5.D06 Coherent and Incoherent Instabilities Measurements and Countermeasures

MC5.D07 High Intensity Circular Machines Space Charge, Halos

MC5.D08 High Intensity in Linear Accelerators Space Charge, Halos

MC5.D09 Emittance manipulation, Bunch Compression and Cooling

MC5.D10 Beam-Beam Effects Theory, Simulations, Measurements, Code Developments

MC5.D11 Code Developments and Simulation Techniques

MC5.D12 Electron Cloud and Trapped Ion Effects

MC6: Beam Instrumentation and Controls, Feedback and Operational Aspects

MC6 covers measurement and control of the beam properties in particle accelerators including beam diagnostics and instrumentation, beam feedback systems, low level rf controls, timing and synchronization schemes and laser-based instrumentation for all types of accelerators. Included also are contributions to accelerator control systems, online modeling, and applications control software, as well as operational aspects of modern accelerators such as alignment and surveying methods, machine protection systems, radiation protection and monitoring, issues pertaining to reliability, and operability and applicable Artificial Intelligence and Advanced Computational Technology solutions.

MC6.D13 Machine Learning

MC6.A28 Medical Applications

MC6.T03 Beam Diagnostics and Instrumentation

MC6.T04 Accelerator/Storage Ring Control Systems

MC6.T05 Beam Feedback Systems

MC6.T17 Alignment and Survey

MC6.T18 Radiation Monitoring and Safety

MC6.T22 Reliability, Operability

MC6.T23 Machine Protection

MC6.T24 Timing and Synchronization

MC6.T25 Lasers

MC6.T26 Photon Beam Lines and Components

MC6.T27 Low Level RF

MC6.T33 Online Modelling and Software Tools

MC7: Accelerator Technology and Sustainability

MC7 covers design, construction, testing and performance of accelerator components or subsystems, with emphasis on technological aspects and methods. It includes radio frequency cavities, power sources and systems, magnets, vacuum, cryogenics, power supplies, superconductivity, collimators, targets, dumps, timing, lasers, and other accelerator components and subsystems. Enclosed are advanced technologies for accelerator component manufacturing, efficiency, sustainable production, operation and recycling. Contributions with emphasis on achieving beam performance specific to an accelerator type or design should generally be classified accordingly.

MC7.T06 Normal Conducting RF

MC7.T07 Superconducting RF

MC7.T08 RF Power Sources

MC7.T09 Normal Conducting Magnets

MC7.T10 Superconducting Magnets

MC7.T11 Power Supplies

MC7.T13 Cryogenics

MC7.T14 Vacuum Technology

MC7.T15 Undulators and Wigglers

MC7.T16 Pulsed Power Technology

MC7.T17 Alignment and Survey

MC7.T19 Collimation

MC7.T20 Targetry and Dumps

MC7.T21 Infrastructures

MC7.T24 Timing and Synchronization

MC7.T25 Lasers

MC7.T31 Subsystems, Technology and Components, Other

MC7.T34 Permanent Magnets

MC7.T35 Advanced Manufacturing Technologies for Accelerator Components

MC7.T36 Sustainability

MC7.T37 Innovation Processes

MC7.T38 Mechanical Design

MC8: Applications of Accelerators, and Engagement for Industry and Society

MC8 emphasizes the broad scientific, societal, and industry applications of accelerators, e.g., for detection, characterization, testing, treatment, processing, and modification, that have impact across many fields and industry sectors. This MC also covers success stories and lessons learned for engagement activities including technology transfer and laboratory-industry collaborations, as well as outreach and communication for broad scientific dissemination.

MC8.A28 Industrial Accelerators

MC8.U01 Health & Biology

MC8.U02 Materials Analysis and Modification

MC8.U03 Transmutation and Energy Production

MC8.U04 Isotope Production

MC8.U05 Security

MC8.U06 Environment

MC8.U07 Sustainability

MC8.U08 Radiation Effects

MC8.U09 Other Applications

MC8.U10 Technology Transfer and Lab Industry

MC8.U11 Outreach and Communications