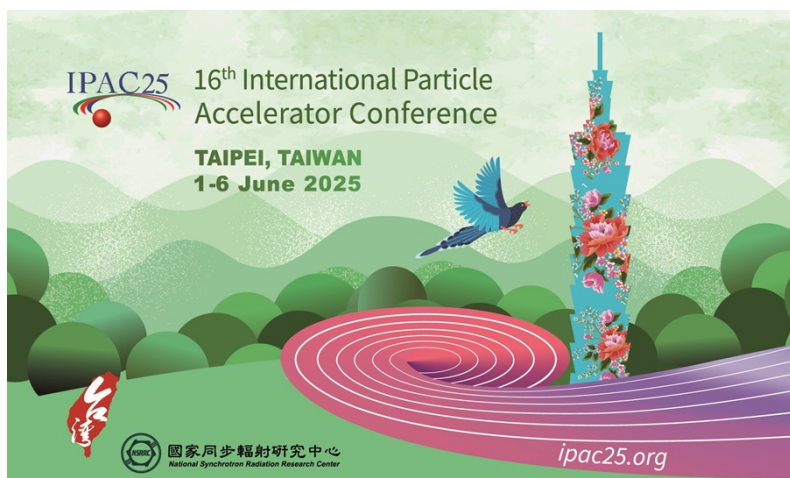


# IPAC'25 - the 16th International Particle Accelerator Conference



**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**