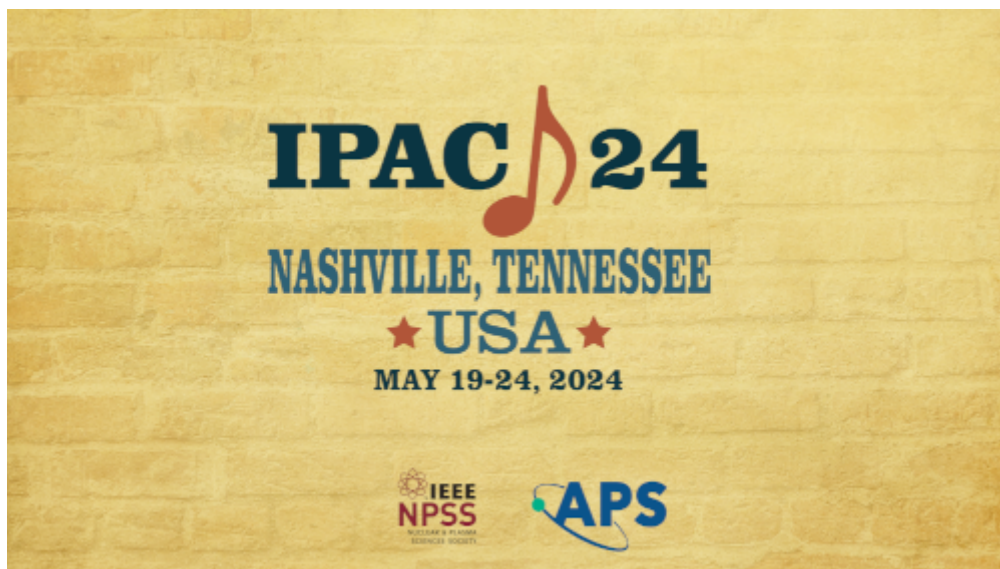


## Session Program

May 19 - 24, 2024



## IPAC'24 - 15th International Particle Accelerator Conference

### *Student Poster Session*

Music City Center  
201 Rep. John Lewis Way S, Nashville, TN 37203, USA

# Sun, May 19

2:00 PM

## Student Poster Session: SUPC

**Poster Session** | **Location:** MCC Exhibit Hall A, Country, 201 Rep. John Lewis Way S, Nashville, TN 37203, USA | **Convener:** Kiersten Ruisard

### **A study for emittance growth compensation by space charge effects at the injector of KEK-STF after dry ice cleaning of the RF gun**

**Speaker**

Sayantana Mukherjee

### **Beam correction for multi-pass arcs in FFA@CEBAF: status update**

**Speaker**

Alexander Coxe

### **Automated emittance and energy gain optimization for plasma wakefield acceleration**

**Speaker**

Mason Stobbe

### **Towards operating low mean transverse energy alkali antimonide photocathodes at Argonne Cathode Test-stand**

**Speaker**

Tariqul Hasan

### **Design, fabrication, and testing of a W-band corrugated waveguide for Wakefield acceleration**

**Speaker**

Brendan Leung

### **Lattice design of a pulsed synchrotron for a muon collider fitting within the Fermilab site boundary**

**Speaker**

Kyle Capobianco-Hogan

### **Dark current studies for a SW C-band electron gun with a deflector**

**Speaker**

Jia Hao Tian

### **Optimization of nanostructured plasmas for laser wakefield acceleration using a Bayesian algorithm**

**Speaker**

Juan Rodríguez Pérez

### **A new rf design of the two-mode transverse deflecting structure**

**Speaker**

Yusen Guo

### **Study on high energy coupling efficiency of laser-electron interaction via vortex beam**

**Speaker**  
Xiazhen Xu

### **Magnetic field study for air-cored HTS skeleton cyclotron**

**Speaker**  
Tsun Him Chong

### **Various methods for computing dominant spin-orbit resonance strengths in storage rings**

**Speaker**  
Joseph Devlin

### **Design of prototype magnet for FETS-FFA**

**Speaker**  
Ta-Jen Kuo

### **Single-shot meV-resolution hard X-ray spectrograph for CBXFEL diagnostics**

**Speaker**  
Mr Keshab Kauchha

### **Dark current reduction for NSRRC photoinjector system by collimator**

**Speaker**  
Yang Jen Lin

### **Energy deposition and radiation level studies for the FCC-ee experimental insertions**

**Speaker**  
Alessandro Frasca

### **Simulating a rectilinear cooling channel using BDSIM for the 6D muon cooling demonstrator**

**Speaker**  
Rohan Kamath

### **Expanding the CERN ion injector chain capabilities: new beam dynamics simulation tools for future ion species**

**Speaker**  
Elias Waagaard

### **High fidelity numerical modelling and condition monitoring applied to septum magnets at CERN**

**Speaker**  
Krzysztof Kawa

### **The design of the proton-EDM injection line, from BNL AGS booster**

**Speaker**  
Jonathan Lee

### **Dynamic aperture of the RCS during bunch merges**

**Speaker**  
Daria Kuzovkova

### **An electron beam modulation laser for steady-state microbunching**

**Speaker**

Xinyi Lu

**Monte Carlo modeling of spin-polarized photoemission from NEA GaAs with low-temperature and strained-lattice effects****Speaker**

John Callahan

**BAGELS: A general method for minimizing the rate of radiative depolarization in electron storage rings****Speaker**

Matthew Signorelli

**Towards mitigation of challenges in development of high power ISOL targets****Speaker**

Sundeeep Ghosh

**Numerical methods for emittance computation from luminosity****Speaker**

Matteo Rufolo

**Transfer learning for field emission mitigation in CEBAF SRF cavities****Speaker**

Kawser Ahammed

**Characterisation and optimisation of a C-band photo-injector for compact light sources****Speaker**

Francesco Demurtas

**Development of an S-band multi-beam accelerator for stationary CT application****Speaker**

Mr Qingzhu Li

**Experimental characterization of the timing-jitter effects on a beam-driven plasma wakefield accelerator****Speaker**

Francesco Demurtas

**Analyzing sudden beam loss in the SuperKEKB/Belle-II experiment with RFSOC technology****Speaker**

Riku Nomaru

**Crystal collimation for the HL-LHC upgrade using MERLIN++ accelerator physics library****Speaker**

Raiza Babu

**Multicell dielectric disk accelerating structure high power experiment results****Speaker**

Sarah Weatherly

**First implementation of RF-KO slow extraction at COSY**

**Speaker**

Philipp Niedermayer

**Studies of space-charge compensation of positive ions by creating time-dependent secondary electrons in low-energy beam transport line****Speaker**

Emre Cosgun

**Picometer scale emittance from plasmonic spiral photocathode for particle accelerator applications****Speaker**

Alimohammed Kachwala

**ELISA: a compact linear accelerator for societal applications****Speaker**

Eleonora Pasino

**Beam dynamics study for a high-repetition-rate infrared terahertz FEL facility****Speaker**

Yimin Yang

**Energy dependence of PS main unit harmonics****Speaker**

Vittorio Ferrentino

**LHC 2023 ion optics commissioning****Speaker**

Vittorio Ferrentino

**Performance optimization design of photocathode injector based on multi-objective genetic algorithm****Speaker**

Zheng Sun

**The design of a 2.3-cell X-band photocathode RF electron gun****Speaker**

Zixin Guo

**Improvements to 4-rod RFQs with additive manufacturing processes****Speaker**

Julius-Stephan Storch

**A faster algorithm to compute lowest order longitudinal and transverse resistive wall wake for non-ultrarelativistic case****Speaker**

Mr Jiazhen Tang

**An ultimate single-ion source using a Coulomb crystal in a Paul trap****Speaker**

Kento Muroo

**An experimental proposal for the strong-filed Terahertz generation at SXFEL facility**

**Speaker**  
Kaiqing Zhang

**Normalized uniformity-based common points layout optimization method for alignment installations**

**Speaker**  
Ting Ding

**Generating tunable X-ray optical frequency combs using a free-electron laser**

**Speaker**  
Lanpeng Ni

**Novel positron beam generation based on Shanghai Laser Electron Gamma Source**

**Speaker**  
Sheng Jin

**Introducing a semi-Gaussian mixture model for simulating multiple coulomb scattering in RF-Track**

**Speaker**  
Bernd Stechauner

**Searching for the best initial beam parameters for efficient muon ionization cooling**

**Speaker**  
Bernd Stechauner

**Particles and photon attenuating behavior of lead free Eu<sup>3+</sup> doped barium phosphate glass system**

**Speaker**  
Devendra Upadhyay

**Development of new method of NEA Activation with Cs-Sb-O**

**Speaker**  
Yukiya Wakita

**Measurements of beam correlations induced via coupled resonance crossing in the CERN PSB**

**Speaker**  
Eleanor Lamb

**Luminosity effects due to dependent heavy-tailed beams**

**Speaker**  
Eleanor Lamb

**Simulation of CXFEL with MITHRA code**

**Speaker**  
Elena Ros

**Optimizations and updates of the FCC-ee collimation system**

**Speaker**  
Giacomo Broggi

**Beam dynamics and injection condition in a ring-type dipole of a laser-accelerated electron beam for compact light sources**

**Speaker**  
Keonho Kim

**Compact high average power THz source driven by thermionic RF gun**

**Speaker**  
Yining Yang

**Study of the radiation field from multiple out-coupling holes in an infrared free electron laser oscillator**

**Speaker**  
Mengqi Xia

**Instability of asymmetric electron drive beams in hollow plasma channels**

**Speaker**  
Rafael Yrjosmiel Legaspi

**High gradient operation of cryogenic C-band RF photogun at UCLA**

**Speaker**  
Gerard Lawler

**Simulation of electron beams from the ELBE superconducting RF gun for ultrafast electron diffraction experiments**

**Speaker**  
Raffael Niemczyk

**Optimization of bunch charge distribution for space charge emittance growth compensation in the PERLE injector**

**Speaker**  
Connor Monaghan

**First FCC-ee lattice design with nested magnets**

**Speaker**  
Cristobal Miguel Garcia Jaimes

**Optimization of ELSA electron beam transport for its inverse Compton scattering X-ray source**

**Speaker**  
Abel Pires

**Demonstration of enhanced quantum efficiency from optical interference in alkali antimonide photocathodes**

**Speaker**  
Chad Pennington

**Background mitigation concepts for Super-NaNu**

**Speaker**  
Florian Stummer

**Preliminary design consideration for CEPC fast luminosity feedback system**

**Speaker**  
Meng Li

**Electron cloud studies for DAΦNE collider and FCCee damping ring**

**Speaker**

Senem Ozdemir

**Optimization of cooling distribution of the EIC cooler ERL****Speaker**

Ningdong Wang

**Novel high-intensity X and Gamma-rays sources using crystals****Speaker**

Riccardo Negrello

**Characterization of FEL mirrors with long ROCs****Speaker**

William Delooze

**Experimental investigation of zero transverse force modes in sub-THz dielectric lined waveguide****Speaker**

Cassandra Phillips

**Commissioning of spectral diagnostics and future concepts for the PAX experiment at FACET-II****Speaker**

Rafi Hessami

**UV-Soft X-ray betatron radiation characterization from laser-plasma wakefield acceleration****Speaker**

Daniele Francescone

**Optimizations for ultrafast electron diffraction with a cryogenic C-band gun****Speaker**

Chad Pennington

**Framework for a multiphysics model of optical field emission from extended nanostructures****Speaker**

Joshua Mann

**Chemical robustness enhancement of negative electron affinity photocathodes through cesium-iodide deposition****Speaker**

Samuel Levenson

**Pulsed Compton Gamma-ray beam generation using pulsed FEL beam****Speaker**

Stepan Mikhailov

**High-energy and narrow-bandwidth X-ray regenerative amplifier FEL design for LCLS-II-HE****Speaker**

Madison Singleton

**Dark current in the LCLS Injector: characterization and mitigation strategies**



**Speaker**

Sean Littleton

**Linking edge-ML X-ray diagnostics and adaptable photoinjector laser shaping for leveraging the capabilities of LCLS-II****Speaker**

Jack Hirschman

**Evaluation of ultrafast THz near-fields for electron streaking****Speaker**

Annika Gabriel

**Simulating the transverse probing of laser-driven plasma wakefields using ultrarelativistic electrons****Speaker**

Evan Trommer

**Transport and dosimetry of laser-driven proton beams for radiobiology at the BELLA center****Speaker**

Jared De Chant

**Computational simulations and beamline optimizations for an electron beam degrader at CEBAF****Speaker**

Victor Lizárraga-Rubio

**Test of a metamaterial structure for structure-based wakefield acceleration****Speaker**

Dillon Merenich

**Application and comparative analysis of the APES\_CBI module in BEPC-II experimental results****Speaker**

Siyuan Feng

**Optimization of laser coupling into optically field ionized plasma channels for laser-plasma acceleration****Speaker**

Josh Stackhouse

**Flat beam transport for a PWFA experiment at AWA****Speaker**

Pratik Manwani

**Comparison of flat beam PWFA analytic model with PIC simulations****Speaker**

Pratik Manwani

**Temporal profile shaping for a dispersive section using a multi-objective genetic algorithm****Speaker**

Zheng Sun

### **Magnetic field modelling and symplectic integration of magnetic fields on curved reference frames for improved synchrotron design: first steps**

**Speaker**

Silke Van der Schueren

### **Simulation of coupled space charge and wakefield effects for a prototype TW-gun at SwissFEL**

**Speaker**

Jonas Christ

6:00 PM

2:00 PM

## **Student Poster Session: SUPG**

**Poster Session** |

**Location:** MCC Exhibit Hall A, Bluegrass, 201 Rep. John Lewis Way S, Nashville, TN 37203, USA | **Convener:** Kiersten Ruisard

### **Effects of implantation temperature and annealing on structural evolution and migration of ruthenium in glassy carbon**

**Speaker**

Tasabeeh Alabid Jafer

### **Comparison of WarpX and GUINEA-PIG for electron positron collisions**

**Speaker**

Mr Bao Nguyen

### **Enhanced harmonic stability in magnet resonant power supplies via multi-harmonic closed-loop control and current feedforward**

**Speaker**

Ran Li

### **Research on design of a novel permanent quadrupole magnet**

**Speaker**

Shaoxiang Dong

### **Experimental design for validating the feasibility of in-situ plasma cleaning of normal conducting copper cavities**

**Speaker**

Qianxu Xia

### **Study of the beam-beam interaction in an electron-positron collider with large Piwinski angle and crabbed waist**

**Speaker**

Sangya Li

### **SRF cavity fault prediction using deep learning at Jefferson Lab**

**Speaker**

Monibor Rahman

### **Generation of attosecond electron bunches through terahertz regulation**

**Speaker**

Yian Wang

### **Decoupling of nitrogen and oxygen impurities in nitrogen doped SRF cavities**

**Speaker**  
Hannah Hu

**Tracking study of the bimodal RF cavity for storage ring light source**

**Speaker**  
Dinghui Su

**New design techniques on matching couplers for travelling wave accelerating structures**

**Speaker**  
Zexin Cao

**A large momentum acceptance gantry for light-weight proton therapy facility: its beam lattice, magnets design and clinical advantages**

**Speaker**  
Yicheng Liao

**Impact of octupoles on the Schottky spectra of bunched beams**

**Speaker**  
Christophe Lannoy

**RF design of a C-band spherical pulse compressor for Super Tau-Charm linac**

**Speaker**  
Zexin Cao

**SRF cavity instability detection with machine learning at CEBAF**

**Speaker**  
Hal Ferguson

**Near-infrared noise in intense electron beams**

**Speaker**  
Sergei Kladov

**Measurement of stability diagrams in the IOTA ring at Fermilab**

**Speaker**  
Mary Bossard

**Study and simulation of cryogenic photonic-band-gap disk-loaded structure**

**Speaker**  
Dinghui Su

**Fabrication and tuning of a 325 MHz ion-injector prototype for particle therapy facility**

**Speaker**  
Yusen Guo

**Magnetron diagnostics with a novel optical fibre-Cherenkov detector**

**Speaker**  
Prof. Carsten Welsch

**Exploring high gradient limit with cryogenic experiments at FREIA laboratory**

**Speaker**  
Mircea Coman

**Bunch-by-bunch simulations of beam-beam driven particle losses in the LHC****Speaker**

Philippe Belanger

**Current status of MINIBEE: minibeam beamline for preclinical experiments on spatial fractionation in the FLASH regime****Speaker**

Aikaterini Rousseti

**AGS Booster model calibration and digital-twin development****Speaker**

Weijian Lin

**Multi-mode cavity design and characterization****Speaker**

Mr Benjamin Sims

**Characterization of meter-scale Bessel beams for plasma formation in a plasma wakefield accelerator****Speaker**

Travis Nichols

**Bayesian optimization scheme for the design of a nanofibrous high power target****Speaker**

William Asztalos

**Progress on pulsed electron beams for radiation effects characterization of electronics****Speaker**

Atharva Kulkarni

**Waveguide system for an SRF cryomodule in KEK****Speaker**

Prakash Joshi

**Topology optimization of a dipole magnet using normalized gaussian network****Speaker**

Jie Li

**Findings of simulation studies for the fast corrector magnets of PETRA IV****Speaker**

Jan-Magnus Christmann

**Emittance growth studies due to Crab Cavity induced amplitude noise in the SPS****Speaker**

Andrea Fornara

**Simulations of simultaneous measurement of GHz bunches using a fast kicker****Speaker**

Xiao-Yang Zhang

**Focusing of high-energy electron beam using silicon crystals for application in radiotherapy**

**Speaker**

Marta Monikowska

**Detailed simulation study of wakefield induced beam dynamics in the dielectric dechirper at CLARA****Speaker**

Beatriz Higuera Gonzalez

**Beam studies using a Cherenkov diffraction based beam position monitor for AWAKE****Speaker**

Bethany Spear

**Generation of symmetrical optical caustic beams for precise alignment****Speaker**

Martin Dusek

**PIP-II laser beam profile monitor laser system****Speaker**

Parker Landon

**Optimizing current density measurements for intense low beta electron beams****Speaker**

Madison Howard

**Modeling and optimization of the FACET-II injector with machine learning algorithms****Speaker**

Sanjeev Chauhan

**Mechanical design, structural requirements and optimization of the FCC e+e- interaction region components****Speaker**

Francesco Franesini

**Novel materials for beam acceleration****Speaker**

Sadie Seddon-Stettler

**Comprehensive modeling of Siberian Snakes in BNL's AGS: symplectic tracking and optical compensation****Speaker**

Eiad Hamwi

**Proposal for a proton-bunch compression experiment at IOTA in the strong space-charge regime****Speaker**

Benjamin Simons

**Development of novel magnetically-focussed minibeam for in vivo and in vitro end stations for Laser-hybrid Accelerator for Radiobiological Applications****Speaker**

Rehanah Razak

**Unifying coherent synchrotron radiation wakefield and classical radiation reaction****Speaker**

Zhuoyuan Liu

**Real time crystal collimation monitoring at the CERN Large Hadron Collider****Speaker**

Gianmarco Ricci

**Dark current simulations in accelerating structures operating with short RF pulses****Speaker**

Gaurab Rijal

**Direct measurements of RHIC BPM data at the IP using linear regression****Speaker**

William Fung

**Measurement and modeling of beam transport in the FODO line of the Spallation Neutron Source Beam Test Facility****Speaker**

Trent Thompson

**Design of a 3-cell rectangular deflecting cavity for a compact THz-FEL****Speaker**

Ruiying Luo

**Research on spatial alignment of laser and electron beam in the generation of ultra-short electron pulses by laser modulation****Speaker**

Jingya Li

**Simulations of an electro-optical in-vacuum bunch profile monitor and measurements at KARA for use in the FCC-ee****Speaker**

Micha Reissig

**Devices and preparation methods for niobium coupon samples used to investigate high-Q mechanism****Speaker**

Yue Zong

**3D beam tracking studies including intrabeam scattering****Speaker**

Alexander Engeda

**Thermal diffusivity and acoustic properties of Nb thin films studied by time-domain thermoreflectance****Speaker**

Md Obidul Islam

**Minimizing space charge tune spread and increasing beam quality parameters with circular modes****Speaker**

Onur Gilanliogullari

**Status of coil-dominated discrete-cosine-theta quadrupole prototype for high rigidity isotope beams****Speaker**

David Greene

**Detailed characterization of coherent synchrotron radiation effects using generative phase space reconstruction****Speaker**

Juan Pablo Gonzalez-Aguilera

**Design of an X-band parallel-coupled travelling-wave accelerating structure for future linacs****Speaker**

Zexin Cao

**Simulation of beam loading compensation with RF-Track****Speaker**

Javier Olivares Herrador

**Superconducting thin films on higher order mode antennas to increase the CW performance of SRF cavities at MESA****Speaker**

Paul Plattner

**Buffered chemical polishing process for SHINE 3.9 GHz cavities****Speaker**

Zheng Wang

**Simulation study of nanosecond pulse power based on gyromagnetic nonlinear transmission line****Speaker**

Wenbin Zhang

**The gamma activation measurements at Shanghai Laser Electron Gamma Source****Speaker**

Yuxuan Yang

**Advancing non-linear space charge simulations: neural networks and analytical approaches****Speaker**

Isabella Vojskovic

**Implementing bunch-by-bunch diagnostics at the KARA booster synchrotron****Speaker**

Marvin Noll

**Investigating X-ray detector systems using Monte Carlo techniques****Speaker**

Lauryn Eley

**Real-time measurements of the RF-path of an electro-optical bunch arrival-time monitor with integrated planar pickup structure with low-charge electron beams at ELBE**

**Speaker**

Mr Bernhard Scheible

**Microscopic understanding of the effects of impurities in low RRR SRF cavities****Speaker**

Katrina Howard

**The FORTRESS beamline at Tsinghua university****Speaker**

Peng Lv

**Commissioning and experiments with a compact transverse deflecting system at FLUTE****Speaker**

Matthias Nabinger

**Gas jet-based beam profile monitor for the electron beam test stand at CERN****Speaker**

Oliver Stringer

**Second generation Cherenkov diffraction radiation studies at Diamond Light Source****Speaker**

Alec Clapp

**Magnetic measurements for Halbach-type permanent quadrupoles using a single-stretched wire system****Speaker**

Davide Cuneo

**Investigation of hot-spots due to local trapped flux in niobium superconducting radiofrequency cavities****Speaker**

Bashu Khanal

**Updates on the Cornell cryo-MTE-meter beamline****Speaker**

Charles Zhang

**Optimizing the sextupole configuration for simultaneous correction of third order resonances at the recycler ring****Speaker**

Cristhian Gonzalez-Ortiz

**Experimental study into the invasiveness of a gas jet beam profile monitor for charged particle beams****Speaker**

Oliver Stringer

**Discovering transient models of emittance growth via mode interaction of phase space nonuniformities****Speaker**

Liam Pocher



**The design of a rocket based RF electron accelerator for space applications****Speaker**

Mr Christopher Roper

**Analysis of laser engineered surface structures' roughness and surface impedance****Speaker**

Patrick Krkotic

**Bayesian optimization for beam centroid correction at ISAC****Speaker**

Emma Ghelfi

**Improvements of longitudinal stability with LLRF optimization at SIRIUS****Speaker**

David Daminelli

**Field emission assisted heating of Cs<sub>2</sub>Te photocathode: implication toward RF breakdown****Speaker**

Ryo Shinohara

**Automation upgrade of the CXLS photoinjector****Speaker**

Taryn Brown

**Dynamics study of the crab crossing at the electron ion collider using square matrix and iterative methods****Speaker**

Kelly Anderson

**Autofocusing accelerator beams****Speaker**

Alexander Katrusiak

**CXLS ionizing and laser radiation safety interlock systems****Speaker**

Eric Everett

**Measuring uniformity and gas density of gas sheet profile monitor for use with heavy-ion accelerators****Speaker**

Aubrey Lokey

**Slow longitudinal mode 1 instability in electron storage rings with harmonic cavities****Speaker**

Murilo Alves

**Parameters and process study of copper chamber coating with niobium thin films in DC and HIPIMS modes****Speaker**

Jiawen Kan

**SiPM integration testing for FACET-II pair spectrometer**

**Speaker**  
Jack Phillips

**Mapping of an SRF electron gun focusing solenoid assembly**

**Speaker**  
Christopher Jones

**A wireless method for beam coupling impedance bench measurement of resonant structures**

**Speaker**  
Chiara Antuono

**Simulation studies of laser cooling for the Gamma Factory proof-of-principle experiment at the CERN SPS**

**Speaker**  
Peter Kruyt

**Two slit emittance measurement with thermal emittance isolation for an SRF injector**

**Speaker**  
Mr Benjamin Sims

**Beam tomography using MCMC**

**Speaker**  
Anthony Tran

6:00 PM