Technical Program

Sunday, October 26

A PRIMER SESSION

9:00–9:30  Opening (S. Dabagov, L. Palumbo, M. Calvetti, C. Guaraldo)
9:35–10:15 A. Zichichi (to be announced) /invited/

Coffee break (20 min)

10:45–11:15 G. Barbiellini
Channeling in Frascati INFN /invited/

11:20–11:50 N. Shul’ga
Advances in Coherent Bremsstrahlung and LPM-effect Studies (in commemoration of the 100th anniversary from the birth of L.D. Landau) /invited/

11:55–12:25 A. Potylitsyn
Monochromatic X-ray Sources Based on Table-Top Electron Accelerators and X-ray Tubes /invited/

Lunch (1h 30min)

14:00–14:30 R. Ruth, J. Rifkin, and R. Loewen
The Compact Light Source: A Miniature Synchrotron /invited/

14:35–15:05 J. Faure
Laser-Plasma Based Electron Accelerators /invited/

15:10–15:40 V. Rozanov
The Radiation Yield in Different Spectral Ranges from Low Density Structured Laser Plasma with Different High Z-Admixture /invited/

Coffee break (20 min)

16:05–16:35 S. Fomin, Y. Mel’nik, V. Pilipenko, and N. Shul’ga
Challenge Safe Fast Reactor Working in a Nuclear Burning Wave Regime /invited/

16:40–17:10 S. Connell
Physics of Diamond and Applications /invited/
17:15-17:45  L. Serafini
Compton Sources: Physics and Applications, Following SPARC & PLASMONX Projects /invited/

22:00    Welcome Party
Monday, October 27

Session: S3.1 – Novel Sources: PXR & TR & DR & FEL & Plasma
Chair: H. Backe


9:35-9:50  E. Bessonov
Methods of Charged Particle Beam Cooling

9:55-10:10 M. Ryazanov, M. Strikhanov, and A. Tishchenko
Backward Transition Radiation at Grazing Incidence on Rough Metal Surface as a Source of THz Radiation

10:15-10:30 N. Shul’ga, V. Syshchenko, and S. Shul’ga
Equivalent Photon Method and Eikonal Approximation in the Theory of Transition Radiation

Coffee break (20 min)

Session: S3.2 – Novel Sources: PXR & TR & DR & FEL & Plasma
Chair: F. Komarov

10:55–11:25  R. Avakian
PXR and DTR Radiations of 4.5 GeV Electrons in Diamond and Quartz Crystals /invited/

11:30–11:45  M. Castellano, E. Chiadroni, and A. Cianchi
Diffraction Radiation as a Diagnostics Tool at FLASH

11:50–12:05  A. Lobko
Compact PXR Sources: Achievable Parameters and Possible Applications

12:10–12:25  K. Ispirian, A. Gogolev, and A. Potylitsyn
Ray Tracing Calculation of PXR Produced in Curved and Flat Crystals by Electron Beams with Large Emittance

Lunch (1h 30min)
Session: S1.1 – Coherent Bremsstrahlung
Chair: A. Potylitsyn
14:00-14:30 N. Baier, and V. Katkov
Spectra of Radiation and Created Particles at Intermediate Energy in Oriented Single Crystal /invited/
14:35-15:05 U. Uggerhoj (representing CERN NA63)
Trident Production Observed in Aligned Crystals /invited/
15:10-15:25 S. Fomin, A. Fomin, and N. Shul’ga
Bremsstrahlung in a Thin Layer of Matter at High Energy
15:30-15:45 Alper Dizdar (CERN NA63)
Radiation from Thin Structured Targets

Coffee break (20 min)

Session: S1.2 – Coherent Bremsstrahlung
Chair: D. Giulietti
16:10-16:25 A. Mktrtchyan, and V. Parazian
The Induction of Coherent X-Ray Bremsstrahlung in Crystals Under the Influence of Acoustic Waves
The Coherent Bremsstrahlung Beam at MAX-lab Facility
16:50-17:05 V. Maisheev
Coherent Processes in Bent Single Crystals
17:10-17:25 D. Karlovets
On a Dual Symmetry in Some Boundary-Value Problems of Classical Electrodynamics
17:30-17:45 I. Vnukov, D. Baklanov, N. Maslov, A. Mazilov, R. Shatokhin, and Yu.Zhandarmov
Tunable X-ray Source Based on Mosaic Crystals Using for Medical Applications
PS1-1. Spectra of Radiation of Relativistic Electrons at Axial Channeling in the Crystals, A.A. Ananeva, O.V. Bogdanov, K.B. Korotchenko, and Yu.L. Pivovarov


PS1-5. Enhancement of Radiated Photons Number and Energy by the Planar Channeled and Quasi-channeled Electrons in Complex Crystals L. Gevorgian

PS1-6. Formation of Relativistic Positron Systems and Their Decay to Gamma-rays by the Axial Channelling of Positrons in Ionic Crystals A.S. Gevorkyan, and A.R. Mkrtchyan


PS1-8. Calculation of the Photon Spectrum Radiated by a Planarly Channeled Positron Bunch with Allowance for the Medium Polarization L.A. Hovsepyan


PS1-16. Ion-Luminescence in the CdS Type Crystals of Low-Energy Ions Channeling  A.Rasulov, A. Abdukadirov, and M. Khaydarov

PS1-17. On Coherent and Transition Radiation by Relativistic Electrons in the Field of Periodically Deformed Crystal Planes of Atoms N.F. Shul’ga, and V.V. Boyko


PS1-19. Hard Incoherent Radiation in Thick Crystals  N.F. Shul’ga, V.V. Syshchenko, and A.I. Tarnovsky

PS1-20. On Some Details of Radiation of Fast Particles on Fibers V.V. Syshchenko, and N.V. Soboleva

PS1-21. Polarization Of Coherent Type B Bremstrahlung  S.S. Tsirkin, and Yu.P. Kunashenko


PS1-25. The Formation and Usage of Coherent Correlated Charged Particles States in the Physics of Channeling in Crystals  V.I.Vysotskii, S.V.Adamenko, and M.V.Vysotskyy

PS1-26. Unknown Anomalous of Doppler Effect at Extreme Cherenkov Condition During Relativistic Channeling in Perfect Crystals  M.V. Vysotskyy, and V.I. Vysotskii

PS1-27. Diagnostics of Mosaic Crystals by the Scattering of Synchrotron Radiation  P.N. Zhukova

Tuesday, October 28

Session: S3.3 – Novel Sources: PXR & TR & DR & FEL & Plasma
Chair: A. Pathak

9:00-9:30 V. Baryshevsky
Volume Free Electron Lasers /invited/

9:35-9:50 Kh. Chouffani
Laser-Compton Scattering from Intermediate Energy Electron Beams

The Powerful Nanosecond Duration Electron Beam Effect on the Crystalline Tungsten Target

10:15-10:30 A. Cianchi (on behalf of SPARC team)
The Status of the SPARC Project

Coffee break (20 min)

Session: S4.1 – Channeling & Crystal Collimation
Chair: W. Scandale

Muon Channeling and the Need to Investigate Negative Particle Channeling and Collimation /invited/

11:30-11:45 V. Tikhomirov, V. Guidi, and A. Mazzolari
New Possibilities to Facilitate Collimation of Both Positively and Negatively Charged Particle Beams by Crystals

11:50-12:05 S. Hasan
CRYM: a Crystal Channeling Emulation Code Based on the Latest Experimental Data

12:10-12:25 N. Gordillo, R. González-Arrabal, and D. Martín y Marero
A Study of the Coulomb Explosion of High Energy Ions by Comparing Computing Simulations and Experiments

Lunch (1h 30min)
Session: **S4.2 – Channeling & Crystal Collimation**
Chair: **U. Uggerhøj**

14:00-14:30 **W. Scandale**  
*Bent Crystals in the LHC: A Way to Improve the Collimation Efficiency in Modern Hadron Colliders* /invited/

14:35-15:05 **V. Guidi, S. Baricordi, P. Dalpiaz, M. Fiorini, and A. Mazzolari**  
*Observation of High-Efficiency Axial Channeling of High-Energy Protons in a Bent Crystals* /invited/

15:10-15:25 **Y. Kunashenko, and Y. Pivovarov**  
*Creation of Relativistic Positronium Atom by Relativistic Axially Channeled Electron*

15:30-15:45 **A. Redondo-Cubero, K. Lorenz, N. Franco, S. Fernández-Garrido, R. Gago, E.Muñoz, and E. Alves**  
*Influence of Steering Effects on Ion Channeling Determination of Strain in GaN-based Heterostructures*

**Coffee break (20 min)**

Session: **S4.3 – Channeling & Crystal Collimation**
Chair: **V. Guidi**

16:10-16:25 **E. Tsyganov**  
*Thermal Equilibrium of Light Ions in Heavy Crystals*

16:30-16:45 **M. Vysotskyy, and V. Vysotskii**  
*Parametric Channeling and Collapse of Beams of Charged Particles in Crystals*

16:50-17:05 **Juby George, and A. Pathak**  
*Dechanneling of Positrons by Dislocations: Effects of Anharmonic Interactions*

17:10-17:25 **G. Tolstolutskaya**  
*Analysis of Lattice Distortion by Dechanneling*

17:30-17:45 **V. Zvorykin, A. Ionin, S. Kudryashov, A. Levchenko, A. Molchanov, L. Seleznev, D. Sinitzyn, and N. Ustinovskii**  
*Plasma Channels in Air Produced by UV Laser Beam: Mechanisms of Photoionization and Possible Applications*
18:00-19:00  
**Poster Session 2  
Chair: D. Hampai**


PS2-2. Computer Simulations of Experiments on Resonant Coherent Excitation of Ar17+ Ions under Planar Channelling **A.A. Babaev**, and Y.L. Pivovarov


PS2-4. New Experimental Results with Optical Diffraction Radiation Diagnostics **E. Chiadroni**, M. Castellano, A. Cianchi, K. Honkavaara, and G. Kube


PS2-6. Peculiarities in Extreme Ultraviolet Transition Radiation **A.S. Kubankin**

PS2-7. Coherent Creation of Antihydrogen Atoms in a Crystal **Y.P. Kunashenko**


PS2-10. Transition Radiation of Relativistic Electrons on Acoustic Superlattice in Amorphous Media **A. Mkrtchyan**, V. Kocharyan, Z. Amirkhanyan, G. Khachatryan, and A. Movsisyan


PS2-14. Structural Investigations of ZnO Thin Films Grown by Reactive Pulsed Magnetron Sputtering at Different Substrate Temperatures

A. Redondo-Cubero, M. Vinnichenko, M. Krause, and R. Gago

PS2-15. Synchrotron Radiation from a Charge Moving Along Helical Orbit Around a Dielectric Cylinder

A.A. Saharian, A.S. Kotanjyan

PS2-16. Coherent Pair Production in Crystals in Presence of Acoustic Waves

A.R. Mkrtchyan, A.A. Saharian, and V.V. Parazian

PS2-17. The La, Pb, Sn Contained Micro- and Nanocrystals Incorporated into AX (A= Cs, K, Na, Rb; X=Cl, Br, I) Matrixes as Materials for X-ray Detectors


A. Shamamian, and L. Gevorgian

PS2-19. High Spectral Density of Focused Parametric X-ray Radiation

A.V. Shchagin

PS2-20. Spectra of Electrons and Ions in Pyroelectric Accelerator

V.I. Nagaychenko, and A.V. Shchagin

PS2-21. LABSYNC: A Project to Develop a European Facility Based on a Table-top Synchrotron Light Source

G. Di Domenico, A. Franconieri, M. Gambaccini, M. Marziani, A. Taibi, A. Tartari, and J.P. Locquet

PS2-22. Increase of Probability of Particle Capture into the Channeling Regime by the Buried Oxide Layer

V. Guidi, A. Mazzolari, and V.V. Tikhomirov

PS2-22. Smith-Purcell Radiation from an Ideal-Conducting Grating Disposed on a Dielectric Layer

A.A. Tishchenko, D.V. Karlovets, A.P. Potylitsyn, and M.N. Strikhanov
**Wednesday, October 29**

**Session: S3.4 – Novel Sources: PXR & TR & DR & FEL & Plasma**

**S5.1 – X-Ray Channeling & X-Ray Optics & Applications**

**Chair:** K. Chouffani

9:00-9:30  **I. Endo, M. Tanaka, and T. Yoshimura**
*Introduction of Small Accelerators in Student Laboratory for Engineering Education /invited/*

9:35-10:05  **J. Fernandez, V. Scot, D. Sivieri, and A. Guidetti**
*Selective Amplification of X-rays in the Energy Range 30–70 keV /invited/*

10:10-10:40  **P. Wobrauschek, and C. Streli**
*X-ray Fluorescence Analysis with Ultimate Sources, Optics and Detectors – Applications and Results /invited/*

10:45-11:15  **K. Tsuji, M. Yamaguchi, and T. Yonehara**
*Feasibility of X-ray Energy Filtering by Using Polycapillary X-ray Optics /invited/*

**Excursion**
Thursday, October 30

Session: S5.2 – X-Ray Channeling & X-Ray Optics & Applications
Chair: P. Childs

9:00–9:30  F.F. Komarov, and A.S. Kamyshan
Time And Angular Distributions Of Ions Transmitted Through Insulating Capillaries /invited/

9:35–9:50  S. Pogossian
Neutron Number Enhancement in Uranium Thin Film Waveguides

9:55–10:10  Y. Pivovarov, A. Babaev, K. Korotchenko, Y. Kunashenko, and T. Tukhfatullin
Schwinger Scattering of Neutron Beam in Aligned Crystal and by Crystal Surface

X-ray Microfocusing by Polycapillary Optics

Coffee break (20 min)

Session: S2.1 – Channeling Radiation & Related Phenomena
Chair: X. Artru

Advances in Electron and Positron Channeling Studies /invited/

Channeling Experiments with Electrons at the Mainz Microtron MAMI

A Positron Source Using Channeling in Crystals for Linear Colliders

12:10–12:25  L. Gevorgyan
Intense Quasi-Monochromatic Directed X-Ray Radiation of Planar Channeled Positron Bunch

Lunch (1h 30min)
Session: **S3.5 - Novel Sources: PXR & TR & DR & FEL & Plasma**
Chair: **I. Endo**

14:00-14:30 **H. Nitta**
*Diffraction Imaging Radiation and Other Compound Radiation Processes /invited/

14:35-15:05 **L. Gizzi, et al.**
*Laser-Plasma Acceleration: First Experimental Results from the PLASMON-X Project /invited/

15:10-15:25 **D. Giulietti** (on behalf of PLASMON-X team)
*The Status of the PLASMON-X Project*

15:30-15:45 **X. Artru, and C. Ray**
*Acceleration and Radiation in a Helical Cavity*

**Coffee break (20 min)**

Session: **S3.6 - Novel Sources: PXR & TR & DR & FEL & Plasma**
Chair: **L. Serafini**

*Geometrical Effect of Target Crystal on PXR Generation as a Coherent X-ray Source*

16:30-16:45 **V. Malyshevsky**
*Effect of Heavy Ion Charge Fluctuations on Cherenkov Radiation*

16:50-17:05 **G. Mazzitelli, B. Buonomo, F. Murtas, L. Quintieri, and P. Valente**
*The Dafne Beam Test Facility*

17:10-17:25 **A.A. Tishchenko, M.I. Ryazanov, and M.N. Strikhanov**
*X-Ray Transition Radiation at Grazing Incidence from Uneven Surfaces*

17:30-17:45 **G. Naumenko, A. Potylitsyn, L. Sukhikh, and Y. Popov**
*Experimental Investigation of Smith-Purcell Radiation Focusing by Using the Parabolic Periodical Targets*

**20:00 Social Dinner**
Friday, October 31

Session: S5.3 – X-Ray Channeling & X-Ray Optics & Applications
Chair: W. Wagner

9:00–9:30 P. Childs, S. Ong, D. Herbert, and A. O’Neill
X-ray Propagation in Multiwalled Carbon Nanotubes /invited/

Electron Sources Based on the Field Emission Properties of Carbon Nanotube Systems Organized at the Micro- and Mesoscopic Scale

9:55–10:10 V. Vysotskii, and S. Adamenko
Surface Channeling of Magnetic-Charged Particles on Multilayer Surface: Part-I

10:15–10:30 V. Vysotskii, and S. Adamenko
Surface Channeling of Magnetic-Charged Particles on Multilayer Surface: Part-II

Coffee break (20 min)

Session: S2.2 – Channeling Radiation & Related Phenomena
Chair: H. Nitta

Probing Channeling Radiation Influenced by Ultrasound /invited/

11:30–11:45 B. Azadegan, L. Grigoryan, and W. Wagner
Treatment of Planar Channeling Radiation under the Influence of Ultrasound

11:50–12:05 S.V. Blazhevich, and A.V. Noskov

Study of the Radiation Emitted by Low Energy Electrons and Positrons in Bent Crystals
**Lunch (1h 30min)**

**Session:** S2.3 – Channeling Radiation & Related Phenomena

**Chair:** G. Mazzitelli

14:00–14:30  **A. Solov'yov, A. Korol, A. Kostyuk, and W. Greiner**
*Crystalline Undulator: Theoretical Advances /invited/

14:35–15:05  **A. Pathak, J. George, and A. Solov'yov**
*Effects of Dislocations on Positron Channeling in a Periodically Bent Crystal /invited/

*On the Feasibility of an Electron-Based Crystalline Undulator*

15:30–15:45  **A. Kostyuk, A. Korol, A. Solov'yov, and W. Greiner**
*Radiation from a Modulated Positron Beam in the Crystalline Undulator*

**Coffee break (20 min)**

16:10–16:30  **Closing**