Advance Program

**Sunday, 23 September - "CHANNELING PRIMER"**
*at Teatro Civico (Piazza del Teatro 1, Alghero)*

13:00-14:00 - Registration

14:00 - S.B. Dabagov & L. Palumbo, Opening

14:15 - S. Lubrano - Mayor of Alghero
A. Cardi - Vice Mayor by Culture, Greetings from Comune di Alghero

14:45 - U. Dosselli - Director of LNF
A. Ghigo - Dir. of Accelerator Div., LNF: New Trends of Frascati

15:15 - R. Carrigan & E. Tsyganov, High Energy Channeling History

15:45 - S. Bertolucci
L. Bottura, LHC: Status & Future

16:15 - S. Guiducci, SuperB: a New Frascati Collider Facility

16:45 - V. Malka, Electron & X-ray Beam with Laser-Plasma Accelerators

17:15 - M.L. Carvalho, Focusing Systems for X-ray Micro Beam: an Overview

17:45 - R. Bonifacio, Quantum FEL *** CANCELLED ***

19:00-20:00 - Welcome Party
Monday, 24 September - Hotel Calabona

S1: Coherent Bremsstrahlung
Session 1.1  Chair: R. Avakian

9:00-9:25  N. Shul’ga
High-Energy Wave Packets in Processes of Bremsstrahlung, Transition and Coherent Radiation (Invited)

9:30-9:45  M. Bondarenco
Symmetry Properties in Angular Distribution of Radiation in Thin Crystals

9:50-10:05  S. Trofymenko
On the Influence of a Particle’s Field Evolution on its Ionization Energy Losses in Thin Layers of Substance

10:10-10:25  D. Karlovets
Method of Induced Currents and its Applications to the Different Problems of Polarization Radiation

10:30-10:45  Yu. Pivovarov
Line Spectra of Electromagnetic Radiation from Relativistic Nuclei Passing Through Matter

Coffee break (20 min)

S1: Coherent Bremsstrahlung
Session 1.2  Chair: N. Kalashnikov

11:10-11:35  K. Ispiryan
Coherent X-Ray Radiation Produced by Microbunched Beams in Amorphous and Crystalline Radiators (Invited)

11:40-11:55  S. Fomin /N.F. Shul’ga/
Features of Non-Dipole Radiation by Relativistic Electron in Thin Crystal

12:00-12:15  Yu. Kunashenko
Coherent Bremsstrahlung from Neutrons

12:20-12:35  V. Ganenko
Investigation of Coherent Bremsstrahlung A-type and B-type at Electron Energy 200 MeV

12:40-13:05  E. Tsyganov
Registration of Energy Discharge in $D^+D \rightarrow 4He^*$ Reaction in Conducting Crystals (Simulation of Experiment) (Invited)
Lunch break (3 h)
S2: Channeling Radiation & Related Phenomena
Session 2.1 Chair: H. Backe

16:00-16:25 V. Baryshevsky
Time Oscillations of the Intensity of Parametric and Diffracted Channeling X-Ray Radiation (Invited)

16:30-16:45 R. Avakian
Comparison of the SLAC Experimental Data on the Radiation of Planarly Channeled Positrons with Theory Taking into Account the Medium Polarization

16:50-17:05 N. Kalashnikov
Plasmon "Wings" in the Photon Emission Spectra of the Quantum Channeled Particle

17:10-17:25 K. Korotchenko
High-Order Diffraction Reflection and DCR

Coffee break (20 min)

S2: Channeling Radiation & Related Phenomena
Session 2.2 Chair: D. Dauvergne

17:50-18:15 Yu. Pivovarov
Experimental and Theoretical Study of Parametric X-Radiation at Channeling from 255 MeV Electrons in Si (Invited)

18:20-18:35 V. Fedorov
A Search for nEDM and New Constraints on Short-range "Pseudo-magnetic" Interaction Using Neutron Optics of Noncentrosymmetric Crystals

18:40-18:55 A. Ananyeva
Resonant Coherent Excitation of Relativistic Highly Charged Ions at Planar Channelling in Si-Crystal

19:00-19:15 E. Babakhanyan
Above-Barrier Reflection and Degenerate States of Energy Band Spectrum in Planar Channeling of Electrons and Positrons

PS: Session Poster
Session PS1 Chair: D. Hampai

PS1-01 N.F. Shul’ga, V.V. Syshchenko and V.S. Neryabova - Spectral Method in the Axial Channeling Theory

PS1-03 S. Birol, O.B. Kolcu and A. Dizdar - How to Measure the LPM Effect in Low Z Medium


PS1-05 O.B. Kolcu and A. Dizdar - SPARC Beamline Optimization for Channeling Experiments

PS1-06 D.Yu. Sergeeva, A.A. Tishchenko and M.N. Strikhanov - UV and X-Ray Diffraction and Transition Radiation from Charged Particles Bunches

PS1-07 A. Babaev and Yu.L. Pivovarov - Stark Effect for He-like Ions Planar Channeled in a Crystal

PS1-08 Yu.L. Pivovarov, Y. Takabayashi and T.A. Tukhfatullin - Doughnut Scattering of 255 MeV Electrons at <100> Axial Channeling in Thin Si Crystal

PS1-09 P. Schoofs, F. Cerutti, A. Ferrari and G.I. Smirnov - Monte Carlo Modeling of High-Energy Channeling Studies

PS1-10 E. Bagli and V. Guidi - DYNECHARM++: a Software to Simulate the Motion of Charged Particles in Complex Atomic Structures


PS1-12 E.A. Mazur - Generation of Plasmons and Electron Excitations by Quantum Channeled Particle in Crystal *** CANCELLED ***


PS1-14 K.B. Korotchenko and Yu. Kunashenko - Channeling Radiation from Polarized Electron

PS1-15 A.R. Mkrtchyan, L. Grigoryan, H.F. Khachatryan and A. Aslanyan - Radiation from a Particle in Flight through a Plate, the Parameters of Which Vary According to an Arbitrary Periodical Law

PS1-16 N.P. Kalashnikov, A. Olchak and E.V. Khangulian - Radiation from Channeling Electrons, Stimulated by Laser Beam

PS1-17 K. Kruchinin, D.V. Karlovets and J.S. Talaeva - Polarization Radiation generated by a Charged Particle on a Rectangular Screen of Finite Permittivity

PS1-18 Yu. Kunashenko - Coherent Bremsstrahlung from Planar Channeled Positron
PS1-19 O. Bogdanov and S.B. Dabagov - Dechanneling Studies for Moderate Energy Electrons in Si Crystals

PS1-20 E. Bessonov - Light Sources Based on Relativistic Ion Beams


PS1-22 A. Babaev and S.B. Dabagov - Inelastic Nuclear Interactions at Crystal Collimation of Proton Beams *** Oral Session S3.3 ***

PS1-23 A. Babaev, J.F. Clivaz and S.B. Dabagov - Simulation of Crystal Collimation in View of SPS/CERN Beam Optics

PS1-24 S. Mahdipour, B. Azadegan, S.B. Dabagov and W. Wagner - Simulation of Positron Beam Generated by Photons from Channeled Relativistic Electrons on Different Crystallographic Planes and Axes of Si, C, Ge and W Crystals with Geant4 and Mcnpx Monte-Carlo Codes

PS1-25 O. Bogdanov, E. Ficks and Yu.L. Pivovarov - Spectral and Angular Distributions of Emission from Relativistic Channeled Electrons in a Diamond Crystal in Vicinity of the Cherenkov Angle

PS1-26 M.A. Aginian, K.A. Ispirian and M.K. Ispiryan - Channeling Radiation of Microbunched Beams

PS1-27 L.A. Gevorgian, K.A. Ispirian and A.H. Shamamian - Crystalline Undulator Radiation of Microbunched Beams Taking into Account the Medium Polarization

PS1-28 I. Polimatidi and S. Smirnov - The Effect of Electron Beam Reflection in Axial Channeling Mode *** Oral Session S3.2 ***

PS1-29 K. Kruchinin and A.P. Potylitsyn - Is it Possible to Produce Circularly Polarized $\gamma$-beam via Coherent Bremsstrahlung Process?

Tuesday, 25 September - Hotel Calabona

S3: Channeling & Crystal Collimation
Session 3.1 Chair: W. Scandale

9:00-9:25 **V. Tikhomirov**
Multiple Volume Reflection as an Origin of significant Scattering Intensity and Radiation Power Increase *(Invited)*

9:30-9:45 **A. Kovalenko**
Experiments with Bent Crystals for High Energy Ion Beams

9:50-10:05 **I. Kyryllin /S. Trofymenko/**
High-Energy Charged Particle Deflection by a Bent Crystal in TeV energy Region

10:10-10:25 **G. Kovalev**
Scattering of Relativistic Particles in Bent Crystal with Variable Curvature

10:30-10:45 **L. Bandiera**
On the Radiation Accompanying Volume Reflection

Coffee break (20 min)

S3: Channeling & Crystal Collimation
Session 3.2 Chair: F. Murtas

11:10-11:35 **M. Motapothula**
Transmission Axial and Planar Channeling of Protons from Ultra thin(55nm) Si *(Invited)*

11:40-11:55 **A. Mazzolari**
Deflection of MeV Protons by an Unbent Half-Wavelength Silicon Crystal

12:00-12:15 **M. Bondarenco**
Multiple Scattering and Volume Capture of Charged Particles in Bent Crystals

12:20-12:35 **E. Bagli**
Measurement of the Dechanneling Length for High-Energy Negative Pions

12:40-12:55 **I. Polimatidi**
The Effect of Electron Beam Reflection in Axial Channeling Mode

Lunch break (3 h)
S4: X-ray Channeling & X-ray Optics
Session 4.1 Chair: T. Childs

16:00-16:25 **P. von Ballmoos**
Gamma-ray Optics for High-Energy Astrophysics *(Invited)*

16:30-16:45 **Y. Hayakawa**
Computed Tomography for Light Materials Using Monochromatic X-ray Beam Produced by Parametric X-ray Radiation

16:50-17:05 **A. Shchagin**
Excitation of Evanescent Wave by Parametric X-ray Radiation

17:10-17:25 **A. Mkrtchyan**
About the Acoustoplasma State at Low Pressure

Coffee break (20 min)

S4: X-ray Channeling & X-ray Optics
Session 4.2 Chair: A. Esposito

17:50-18:15 **K. Tsuji**
X-ray Elemental Imaging with Scanning and Projection Modes in the Laboratory *(Invited)*

18:20-18:35 **D. Hampai**
Desktop X-ray Tomography of Low Contrast Samples

18:40-18:55 **L. Allocca**
Laboratory PolyCO Based X-ray Imaging of High-Pressure Fuel Sprays

19:00-19:15 **A. Gorghinian**
X-ray Microfluorescence Analysis of Augustan Coins

21:00-22:00 **Round Table 1: E. Tsyganov**
Registration of Energy Discharge in $D^+D \rightarrow 4He^*$ Reaction in Conducting Crystals *(Simulation of Experiment)*
Wednesday,
26 September - Hotel Calabona

S4: X-ray Channeling & X-ray Optics
Session 4.3 Chair: A. Potylitsyn

9:00-9:25 **W. Gabella**
Generation and Application of Channeling X-Rays using a Novel Low-Emittance Electron Beam: Plans and Status (*Invited*)

9:30-9:45 **A. Lobko**
Parametric Gamma-Radiation: Parametric X-rays from Relativistic Electrons Passing Through a Mossbauer Crystal

9:50-10:05 **A. Marcelli**
X-Ray Spectroscopy of Fluorescence Radiation Channeling in $\mu$-Capillary Holed Glass Plates

10:10-10:25 **Art. Mkrtchyan**
Monochromatization of Diffracted Neutrons by Acoustic Superlattice

10:30-10:45 **V. Kocharyan**
Diffraction of Neutrons on the Acoustic Superlattice

Coffee break (20 min)

S4-S5: X-ray Channeling & X-ray Optics;
Novel sources: PXR & TR & FEL & Plasma
Session S4-S5 Chair: V. Baryshevsky

11:10-11:35 **X. Artru**
Radiation Induced by Charged Particles in Optical Fibers (*Invited*)

11:40-11:55 **S. Blazhevich**
Dynamic Theory of Coherent X-radiation of Relativistic Electron Within a Periodic Layered Medium in Bragg Scattering Geometry

12:00-12:15 **A. Movsisyan**
X-Ray Acoustic Diffractometer

12:20-12:35 **D. Karlovets**
Twisted Electron in a Strong Laser Wave

12:40-12:55 **V. Guidi**
High-reflectivity Laue Lens Made by Curved Crystals for High-Resolution Focusing of X and gamma Rays
Excursion /Grotte di Nettuno/

21:00-22:00 **Round Table 2: E. Bessonov**
One way to Lorentz’s Transformations
Thursday, 27 September - Hotel Calabona

S2: Channeling Radiation & Related Phenomena
Session 2.3 Chair: X. Artru

9:00-9:25 **H. Backe**
Observation of Undulator Radiation at Channeling of Electrons in Strained Layer Si-Ge Crystals at MAMI *(Invited)*

9:30-9:45 **V. Tikhomirov**
Crystal Undulators: from the Prediction to the Mature Simulations

9:50-10:05 **A. Kostyuk**
Recent Progress in the Theory of the Crystalline Undulator

10:10-10:25 **B. Azadegan**
Simulation of Planar Channeling Radiation Spectra of Relativistic Electrons and Positrons in Single Crystals Base on Mathematica

10:30-10:45 **O. Bogdanov**
Radiation Energy Loss of Relativistic Electrons at Axial and Planar Channeling in Tungsten Crystal

Coffee break (20 min)

S3: Channeling & Crystal Collimation
Session 3.3 Chair: V. Guidi

11:10-11:35 **Yu. Chesnokov**
Twenty-five Years of Bent Crystal Channeling Applications for Beam Splitting, Extraction and Collimation in the U-70 Accelerator of IHEP *(Invited)*

11:40-11:55 **W. Scandale**
Strong Reduction of the Off-momentum Halo in Crystal Assisted Collimation of the SPS Beam

12:00-12:15 **A. Taratin**
Simulation of Crystal Assisted Collimation of the SPS Beam

12:20-12:35 **G. Smirnov**
Potential Thermal and Radiation Damage to Crystals in the LHC beams

12:40-12:55 **A. Babaev**
Inelastic Nuclear Interactions at Crystal Collimation of Proton Beams

Lunch break (3 h)
S5: Novel sources: PXR&TR&FEL&Plasma
Session 5.1 Chair: N. Shul’ga

16:00-16:25 A. Potylitsyn
Characteristics of Final Particles in Multiple Compton Backscattering Process (Invited)

16:30-16:45 A. Jochmann
Picosecond Narrow Bandwidth X-ray Pulses from a Laser-Thomson-Backscattering Source

16:50-17:05 L. Grigoryan
Intense Cherenkov Radiation from a Particle Rotating About a Dielectric Ball Along a Non-equatorial Orbit

17:10-17:25 M. Shevelev
Experimental Demonstration of Unexpected Behavior of Angular Cherenkov Radiation Distribution

Coffee break (20 min)

S5: Novel sources: PXR&TR&FEL&Plasma
Session 5.2 Chair: A. Mkrtchyan

17:50-18:15 M. Borghesi
Current and Future Ion Acceleration Mechanisms Employing Ultraintense Lasers (Invited)

18:20-18:35 D. Giulietti
Radiation and Particle Secondary Sources Based on Electron Laser Plasma Acceleration

18:40-18:55 A. Schiavi
Advances in Laser Fusion Energy

19:00-19:15 V. Zvorykin
Effects of Picosecond Terawatt UV laser Beam Filamentation and a Repetitive Pulse Train on Creation of Prolonged Plasma Channels in Atmospheric Air

PS: Session Poster
Session PS2 Chair: O. Bogdanov

PS2-01 V. Malyshevsky - Dynamic Interaction of Neutral Atoms with Crystal Surface at Grazing Incidence

PS2-03 V. Shipakov and S.B. Dabagov - Far- and Near-Field Approximation for Diffraction Radiation

PS2-04 Y. Takabayashi and K. Sumitani - Development of a Beam Profile Monitor Using Parametric X-ray Radiation

PS2-05 K.B. Korotchenko, Yu.L. Pivovarov and Y. Takabayashi - Experimental and Theoretical Study of PXRC (Parametric X-Radiation at Channeling) from 255 MeV Electrons in Si

*** Oral Session S2.2 ***

PS2-06 A.A. Tishchenko, K. Lekomtsev and M.N. Strikhanov - Smith-Purcell Radiation from a One-dimensional Photonic Wire

PS2-07 V.V. Parazian and A.A. Saharian - Transition Radiation from a Monoenergetic Electron Bunch in Presence of Acoustic Waves

PS2-08 L. Allocca, S. Alfuso, L. Marchitto, D. Hampai and S.B. Dabagov - 3D Simulation for PolyCO X Imaging of Fuel Sprays

PS2-09 Y. Oishi and T. Nayuki - X-ray Generation from Tribocharging and Feasibility of Application for X-ray Fluorescence Analysis

PS2-10 M. Ferrario, L. Giannessi and A.Z. Ligidov - Modulation of FEL Electron Beam in the Field of External Laser Radiation

PS2-11 L.A. Gevorgian and A.R. Mkrtchyan - On Creation and Control of Dielectric Constant Superlattice in Spin-Glass Medium

PS2-12 A.R. Mkrtchyan A.S. Abrahamyan, S.A. Chilingaryan and Q.G. Sahakyan - Noncorrect Inverse Problems in N$_2$ and CO$_2$ : N$_2$:He Acoustoplasma

PS2-13 A.A. Ponomarenko, M.I. Ryazanov, M.N. Strikhanov and A.A. Tishchenko - Terahertz Radiation from Electrons Moving through a Waveguide with Variable Radius, Based on Smith-Purcell and Cherenkov Mechanisms

PS2-14 A.A. Tishchenko, V.V. Sofronova, M.N. Strikhanov, M.I. Ryazanov and A.P. Potylitsyn - Coherent X-ray Cherenkov and Transition Radiation at Bunch Oblique Incidence on a Target as X-ray Source

PS2-15 A. Lobko - On the Phase Contrast Imaging by Parametric X-rays

PS2-16 S.R. Uglov, V.V. Kaplin and V.N. Zabaev - Experimental Setup on 5.7 MeV Microtron for Investigation of Vacuum Ultraviolet and Ultrasoft X-Ray Radiation Generated in Multilayered Mirror

PS2-17 V. Kaplin, and S.R. Uglov - Energy Dependence of Angular Patterns of X-rays Generated by 20-35 MeV Rechanneling Electrons in Ultrathick Si Crystals

PS2-19 M. Kiss, J. Szasz, I. Santa and S.V. Kukhlevsky - Plasma-based Waveguides for Acceleration of Electrons: Experiment and Theory

PS2-20 A.V. Shchagin and Y. Takabayashi - Parametric X-rays as Conversion of Virtual to Real Quanta

PS2-21 G.V. Kovalev - Spheroidal Coordinates and Diffraction of Waves by Prolate Spheroid and Polyhedrons

PS2-22 M.A. Aginian, K.A. Ispirian and M.K. Ispiryan - Parametric X-Ray Radiation Produced by Microbunched Beams


PS2-24 V. Vysotskii, M. Vysotskyy and S. Bartalucci - Nuclear Synthesis On Ordered Crystal Target With Participation Of Monochromatic Beams Of Light Or Middle Isotopes

PS2-25 S.B. Dabagov, A.V. Dik and A.Z. Ligidov - Ion-Channeled Electron Radiation

PS2-26 G. Gatti - All Optical Compton Based $\gamma$-ray Source

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21:00 Social Dinner
Friday, 28 September - Hotel Calabona

S5: Novel sources: PXR&TR&FEL&Plasma
Session 5.3 Chair: M. Ferrario

9:00-9:25 **L. Rinolfi**
Brief History of CLIC and Other Brilliant Positron Sources (*Invited*)

9:30-9:45 **A. Kotanjyan**
Undulator Radiation Inside a Dielectric Waveguide

9:50-10:05 **A. Tishchenko**
Diffraction Radiation from Periodical Structures as a Source of X-rays

10:10-10:25 **G. Naumenko**
Left Handled Materials in Millimeter Wavelength Region

10:30-10:45 **E. Fiks**
Influence of Stopping in Radiator on the Cherenkov Radiation Angular Distributions from Relativistic Heavy Ions at FAIR, SPS and LHC Energies

Coffee break (20 min)

S5: Novel sources: PXR&TR&FEL&Plasma
Session 5.4 Chair: D. Giulietti

11:10-11:35 **L. Gizzi**
Acceleration with Self-Injection and All-Optical Radiation Sources at LNF (*Invited*)

11:40-12:05 **M. Ferrario**
SPARC_LAB (*Invited*)

12:10-12:35 **G. Dattoli**
Wave Undulators and Free Electron Lasers (*Invited*)

12:40-12:55 **E. Frolov**
Channeling of a Free Electron in a Field of Crossed Laser Beams

Closing

15