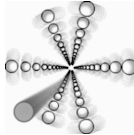




"Channeling 2010"



4th International Conference

Charged and Neutral Particles Channeling Phenomena

Ferrara (FE), Italy October 3 - 8, 2010

<http://www.lnf.infn.it/conference/channeling2010>

Organized by

**Istituto Nazionale di Fisica Nucleare
Laboratori Nazionali di Frascati
Università degli Studi & INFN di Ferrara**

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Technical Program

Sunday, October 3

"CHANNELING PRIMER"

at Castello Estense (Largo Castello 1, Ferrara)

15:00–16:00 Registration (Hall "Imbarcadero I & II")

16:00–18:00 Opening

18:00–19:00 Excursion to Museum of Castello Estense

19:00–20:00 Welcome Party (Hall "Imbarcadero I & II")

Monday, October 4

University of Ferrara,

Via Savonarola, 9, Ferrara

Session: **S1.1 – Coherent Bremsstrahlung**

Chair: **D. Bettoni**

- 9:00–9:25 T.V. Jensen, **A.H. Sørensen**,
Bremsstrahlung from Relativistic Bare Heavy Ions in Single Crystals
/invited/
- 9:30–9:45 **N.P. Kalashnikov**, and A.S. Olchak
Specifics of Fast Charged Particles Scattering on Thin Single Crystal
Films
- 9:50–10:05 **A. Dizdar** /CERN NA63/
Bremsstrahlung Suppression in Thin Foils
- 10:10–10:25 **A.S. Fomin**, S.P. Fomin and N.F. Shul'ga
Radiation of Ultrarelativistic Electron with Non-Equilibrium Own
Coulomb Field
- 10:30–10:45 **V. Maishev**
Photon Emission and Photoproduction Processes in Bent Single Crystals

Coffee break (20 min)

Session: **S1.2 – Coherent Bremsstrahlung**

(devoted to memories of Prof. V.N. Baier)

Chair: **N. Shul'ga**

- 11:10–11:35 **V.M. Katkov**
Exact Theory of the Photoproduction of Charged Particles in External
Fields /invited/
- 11:40–11:55 **R. Chehab**
Some Elements about a Long-term Collaboration between V.N.Baier and
LAL-Orsay
- 12:00–12:15 V. Guidi, A. Mazzolari, and **V. Tikhomirov**
How to Make Coherent Bremsstrahlung Circularly Polarized

12:20–12:35 **S. Hasan**, A.G. Afonin, E. Bagli, S. Baricordi, D. Bolognini, Yu.A.Chesnokov, P.N. Chirkov, P. Dalpiaz, G. Della Mea, V. Guidi, V.A.Maisheev, A. Mazzolari, M. Prest, E. Vallazza, D. Vincenzi, and I.A.Yazynin
High Energy Photon Production in Bent Crystals: the Latest Measurements

Lunch (1h 20min)

Session: **S2.1 – Channeling Radiation & Related Phenomena**
Chair: **F. Komarov**

14:00–14:25 **A. Carnera**
Ion Channelling at MeV Energies: a Tool for a Detailed Investigation of Crystal Structures /invited/

14:30–14:45 **R.O. Avagyan**
The Influence of External Field on Intensity of Channeling Radiation of Electrons in Crystal

14:50–15:05 K.B. Korotchenko, **Yu.P. Kunashenko**, Yu.L. Pivovarov, and T.A. Tukhfatullin
Secondary Electron Emission Induced by Channeled Relativistic Electrons in Si Crystal

15:10–15:25 **A. Kostyuk**, A. Korol, A. Solov'yov, and W. Greiner
Planar Channeling of Electrons: Numerical Analysis and Theory

15:30–15:45 H. Backe, **D. Krambrich**, W. Lauth, J.L. Hansen, and U.I. Uggerhøj
Status of the Photon Emission Experiments in Crystalline Undulators at the Mainz Microtron

Coffee break (20 min)

Session: **S2.2 – Channeling Radiation & Related Phenomena**
Chair: **U. Uggerhøj**

16:10–16:35 **H. Backe**, D. Krambrich, and W. Lauth
Present Status and Future Aspects of Channeling-Radiation Experiments /invited/

16:40–16:55 **A. Solov'yov**, A. Kostyuk, A. Korol, and W. Greiner
Crystalline Undulator Based Laser: Recent Theoretical Advances

- 17:00–17:15 **A.P. Pathak**
Effects of Dislocations and Periodic Bending on Electron Channeling and Channeling Radiation
- 17:20–17:35 **B. Azadegan**, S.B. Dabagov, and W. Wagner
Computer Simulation of Radiation of Axially Channeled Electrons in a Thin Ge Single Crystal
- 17:40–17:55 N.F. Shul'ga, V.V.Syshchenko, and **S.V. Trofymenko**
On Transition Radiation by Relativistic Electron with Equilibrium and Nonequilibrium Coulomb Field on Thin Metallic Plate

18:00–19:00 **Poster Session 1** **Chair: A. Mazzolari**

- PS1-1. Investigation of Coherent Bremsstrahlung Beam Characteristics at Electron Energy 200 MeV, **V. Ganenko**, J. Brudvik, D. Burdeinyi, K. Fissum, K. Hansen, L. Isaksson, K. Livingston, M. Lundin, V. Morokhovskiy, B. Nilsson, and B. Schröder
- PS1-2. **V. Ganenko**, J. Brudvik, D. Burdeinyi, K. Fissum, K. Hansen, L. Isaksson, K. Livingston, M. Lundin, V. Morokhovskiy, B. Nilsson, and B. Schröder
Radiation Spectra of Two Hundred MeV Electrons Moving in Diamond and Silicon Crystals near the Crystal Axis
- PS1-3. On the Coherent Radiation by Relativistic Electrons and Positrons in Crystals at Ultrahigh Energies, **N.F. Shul'ga**, and V.I. Truten'
- PS1-4. Polarization bremsstrahlung radiation of fast charge on atomic bound electrons – analog of nuclear Mossbauer effect, **V.K. Grishin**, and D.P. Nikitin
- PS1-5. Incoherent Bremsstrahlung in Flat and Bent Crystals, N.F. Shul'ga, **V.V.Syshchenko**, and A.I. Tarnovsky
- PS1-6. The Structure of Density Distribution of Particles at Different Depths of Penetration into the Crystal in Case of Planar Channeling within the Framework of Quantum Approach, **E.A. Babakhanyan**
- PS1-7. On Planar Electron Channeling in Thick Si Crystals, **O.V. Bogdanov**, and S.B.Dabagov
- PS1-8. Spectral characteristics of Planar electron channeling radiation from 20 to 800 MeV electrons in a thin silicon carbide, **B. Azadegan**, S. Koroji, and W. Wagner
- PS1-9. Study of radiation damage in crystalline materials using ion beam channeling technique, **G.D. Tolstolutska**, I.E. Kopanetz, and I.M. Neklyudov

- PS1-10. Influence of the Combined Stark-Zeeman Effect on Resonant Coherent Excitation of Relativistic Hydrogen-like Ion Planar Channelled in a Crystal, **A.Babaev**, and Yu.L. Pivovarov
- PS1-11. On Scattering and Coherent Radiation by Relativistic Electons and Positrons in a Field of Bent Crystal Planes, **N.F. Shul'ga**, V.I. Truten', and V.V. Boyko
- PS1-12. Spectral Method in the Theory of Fast Charged Particles Channeling Phenomena in a Crystal, A.V. Kozlov, **N.F. Shul'ga**, and V.A. Cherkaskiy
- PS1-13. Polarization Properties of DCR from Relativistic Channeled Electrons, **K.B.Korotchenko**, and Yu.L. Pivovarov
- PS1-14. Exact Solution of the Dirac Equation for Axially Channeled Relativistic Electrons, **K.B. Korotchenko**, and Yu.P. Kunashenko
- PS1-15. Basic Channeling with Mathematica®: a New Version of Computer Code, O.V. Bogdanov, **E.I. Fiks**, K.B. Korotchenko, Yu.L. Pivovarov, and T.A. Tukhfatullin
- PS1-16. The New Calculation Algorithm for Axial Channeling of Electrons and Angular Distribution of Diffracted Channeling Radiation in Si and LiF Crystals, K.B.Korotchenko, Yu.L. Pivovarov, and **T.A. Tukhfatullin**
- PS1-17. Stimulated optical radiation of positron in crystalline undulator, **A. Shamamian**
- PS1-18. RICCE: Research of Internal Clock by Channeling of Electrons. Preliminary results at the LNF-BTF, **C. Ray**, M. Gouanère, D. Dauvergne, M. Bajard, R. Chehab, M. Chevallier, C. Curceanu, S. Dabagov, R. Kirsch, J.-C. Poizat, J.Remillieux, and E. Testa
- PS1-19. Positron Sources using Channeling: a promising device for Linear Colliders, X.Artru, I. Chaikovska, **R. Chehab**, M.Chevallier, O.Dadoun, K.Furukawa, T.Kamitani, T. Omori, G.Pei, F.Poirier, L.Rinolfie, M.Sato, V.Strakhovenko, T.Sugimura, T.Suwada, T.Takahashi, K.Umemori, J.Urakawa, A.Variola, A.Vivoli, and C.Xu
- PS1-20. A new Monte Carlo Code for Channeling Simulations, **A. Kostyuk**, A. Korol, A.Solov'yov, and W. Greiner
- PS1-21. Crystalline Undulator as a Source of Coherent Radiation, **A. Kostyuk**, A. Korol, A. Solov'yov, and W. Greiner
- PS1-22. Computer modelling of MAMI experiment: radiation spectra, **A. Korol**, A.Kostyuk, A. Solov'yov, and W. Greiner

Tuesday, October 5

University of Ferrara,

Via Savonarola, 9, Ferrara

Session: **S3.1 – Channeling & Crystal Collimation**

Chair: **A. Carnera**

- 9:00–9:25 **D.A. Still**, G.E. Annala, R.A. Carrigan, A.I. Drozhdin, T.R. Johnson, N.V. Mokhov, R.E. Reilly, V. Shiltsev, J. Zagel, Y.A. Chesnokov, I.A. Yazyнин, and Y.M. Ivanov
Operation of a Multi-strip Crystal Collimator in the Fermilab Tevatron (T-980) /invited/
- 9:30–9:45 **Yu. Chesnokov**
Modern Success in Channeling Study and Applications at IHEP Protvino Accelerator
- 9:50–10:05 **W. Scandale**, R. Losito, and A.M. Taratin / On behalf of UA9 collaboration/
Measurement of Nuclear Reaction Rates in Crystals using the CERN-SPS North Area Test Beams
- 10:10–10:25 D. De Salvador, A. Carnera, **O. Lytovchenko**, S. Carturan, N.Argiolas,
M. Bazzan, G. Della Mea, A. Mazzolari, D. Vincenzi, E. Bagli, P.
Dal Piazz, S. Baricordi, V. Guidi, A. Berra, D. Bolognini, S. Hasan, M.
Prest, and E.Vallazza
High-Energy Protons Channeling and Volume Reflection Effects through a Bent Germanium Crystal
- 10:30–10:45 **D. Dauvergne**, C. Ray, A. Bräuning-Demian, F. Bosch, H. Bräuning, M. Chevallier, C. Cohen, A. L'Hoir, C. Kozhuharov, D. Liesen, P.H. Mokler, J.C. Poizat, E. Testa, and P. Verma
Deceleration of H-like Uranium Ions in a Crystal

Coffee break (20 min)

Session: **S3.2 – Channeling & Crystal Collimation**

Chair: **G. Della Mea**

- 11:10–11:35 **N.F. Shul'ga**, V.I. Truten', and I.V. Kirillin
Mechanisms of High Energy Charged Particle Beam Deflection by a Bent Crystal /invited/

- 11:40–11:55 W. Scandale, E. Bagli, V. Guidi, A. Mazzolari, and **A.M. Taratin** /On behalf of RD22 collaboration/
Deflection of High-Energy Negative Particles through Axial Channeling and Reflection in a Bent Crystal
- 12:00–12:15 V. Guidi, **A. Mazzolari**, and V. Tikhomirov
New Approaches to the Crystal Collimation
- 12:20–12:35 **G.V. Kovalev**
Coherent Scattering of Relativistic Particles in a Uniformly Bent Crystal

Lunch (1h 20min)

Session: **S4.1 – X-Ray Channeling & X-Ray Optics & Applications**
Chair: **G. Mazzitelli**

- 14:00–14:25 **F.F. Komarov**, and A.S. Kamyshan
Peculiarities of Swift Proton Transmission through Micro- and Nanocapillary Structures /invited/
- 14:30–14:45 **M.V. Bondarencо**
Analytic Theory of Volume Reflection and the Accompanying Radiation
- 14:50–15:05 **V. Guglielmotti**, S. Orlanducci, V. Sessa, F. Toschi, M.L. Terranova, D. Hampai, M. Rossi, S. Dabagov, A.T. Dideikin, A.Ya. 'Vul, A. Mascioletti, and P. De Stefanis
Carbon Nanotube Based Cold Cathodes and Channeling Phenomena for a New Generation of X-Ray Systems
- 15:10–15:25 A.S. Gogolev, Yu.A. Popov, **A.R. Wagner**, and A.P. Potylitsyn
The Coherent Scattering of X-ray under Acoustic Exposure
- 15:30–15:45 **D. Hampai**, S.B. Dabagov, G. Cappuccio, and V. Guglielmotti
X-Lab as a New X-ray Facility at LNF

Coffee break (20 min)

Session: **S4.2 – X-Ray Channeling & X-Ray Optics & Applications**
Chair: **M. Gambaccini**

- 16:10–16:35 S. Smolek, C. Streli, N. Zoeger, **P. Wobrauschek**, and F. Meirer

Micro X-ray Fluorescence Spectrometer with Low Power Tube and Polycapillary Optics for Light Element Analysis /invited/

- 16:40–16:55 **D. Pacella**, S. Dabagov, F. Murtas, L. Gabellieri, A. Romano, D. Hampai, and D. Mazon
Polycapillary Optics for Soft X-ray Diagnostics in Magnetic Fusion Plasmas
- 17:00–17:15 **G. Mazzitelli**, R. Bedogni, B. Buonomo, M. Chiti, A. Esposito, A. Gentile, M. De Giorgi, L. Quintieri, and P. Valente
New Neutron Source at the Beam Test Facility (BTF) of Frascati
- 17:20–17:35 **K.B. Korotchenko**, Yu.P. Kunashenko, and Yu.L. Pivovarov
Neutrons Planar Channeling in the Crystals
- 17:40–17:55 **R.N. Rodionov**, M.N. Strikhanov, and A.A. Tishchenko
Modelling of Thermal Neutrons Channeling in Nanotubes with Surface Circular Currents

18:00–19:00 **Poster Session 2** **Chair: D. Hampai**

- PS2-1. Angular Distributions of Bent Crystal Deflected Protons, **A. Babaev**, and S.B.Dabagov
- PS2-2. Electromagnetic Radiation Accompanying Multiple Volume Reflection in One Crystal, V. Guidi, **A. Mazzolari**, and V. Tikhomirov
- PS2-3. Optimization of crystal parameters for effective extraction and collimation in ring accelerators, **V.A. Maisheev**, Yu.A. Chesnokov, and I.A.Yazynin
- PS2-4. Adjustable bending of silicon plates through mechanical indentations, **V.Bellucci**, R. Camattari, and V. Guidi
- PS2-5. Bent crystals obtained by LEPECVD for medical applications, V. Guidi, **P. Joice Sophia**, and I. Neri
- PS2-6. Crystals curved through deposition of stressed films onto bulky substrates for Laue lens applications, S. Baricordi, V. Guidi, A. Mazzolari, **I. Neri**, J.S. Ponraj, L. Pozzetti, and D.Vincenzi
- PS2-7. A numerical investigation on the temperature profile of a channelling crystal, **A.Giberti**, V. Guidi, M. Munerato, and A. Poluzzi
- PS2-8. Methods of Numerical Simulation of High-Energy Charged Particles Passage through a Bent Crystal, **I.V. Kyrillin**, and V.I. Truten

- PS2-9. Is the Volume Capture of Relativistic Particles into the Channeling Completely Incoherent Process? **G.V. Kovalev**
- PS2-10. Observation of Multiple Volume Reflection by Different Planes in One Bent Silicon Crystal for High-Energy Negative Particles, W. Scandale, E. Bagli, V. Guidi, A. Mazzolari, and **A.M. Taratin**, /On behalf of RD22 collaboration/
- PS2-11. First Observation of Planar Channeling and Volume Reflection of Highly Relativistic Protons in a Bent LiNbO₃ Crystal, **D. De Salvador**, A. Carnera, O. Lytovchenko, S. Carturan, N. Argiolas, M. Bazzan, G. Della Mea, A. Mazzolari, D. Vincenzi, E. Bagli, P. Dal Piaz, S. Baricordi, V. Guidi, A. Berra, D. Bolognini, S. Hasan, M. Prest, and E. Vallazza
- PS2-12. Numerical and Experimental Investigation of LiNbO₃ Piezoelectricity for Relativistic Energy Channelling Applications, **M. Bazzan**, D. De Salvador, N.Argiolas, L. Facci, M. Michieletto, and A. Carnera
- PS2-13. Progresses on high energy beam deflection by multiple volume reflections in a series of bent crystals, D. De Salvador, A. Carnera, G. Della Mea, **A.Mazzolari**, D. Vincenzi, E. Bagli, P. Dal Piaz, S. Baricordi, V. Guidi, A. Berra, D. Bolognini, S.Hasan, M. Prest, and E. Vallazza
- PS2-14. Use of Carbon Nanotubes and Graphene in Particle Detectors and Beam Monitors, **K.A. Ispirian**, and R.K. Ispiryan
- PS2-15. Effect of Surface Channeling of Neutral Atoms, **V.S. Malyshevsky**, and A.V.Kazakov
- PS2-16. Features of atomic and molecular beams passage through capillary systems at presence of evanescent light waves, B.M. Sinel'nikov, **M.D. Bavizhev**, N.V. Kot, and A.A. Titarenko
- PS2-17. Features of Orientational Motion of Neutrons and Uncharged Particles with Abnormal Magnetic Moment in Crystals and Near Nuclear Surface. The Problem of Existence of Neutron-Nuclear Molecules, **V.I.Vysotskii**, and M.V.Vysotskyy
- PS2-18. Radiation from Rough Surfaces, **Zh.S. Gevorkian**
- PS2-19. Combined RBS-PIXE-NRA study of Fe-diffused lithium niobate crystals, **N.Argiolas**, D.De Salvador, A.Zaltron, M.V.Ciampolillo, M.Bazzan, and C.Sada
- PS2-20. Calculation of class b mosaic crystals reflectivity by Monte-Carlo technique, D.A.Baklanov, T.G. Duong, S.A. Laktionova, R.A. Shatokhin, **I.E. Vnukov**, and Yu.V. Zhandarmov
- PS2-21. X-Rays Generated by Relativistic Electrons in Waveguide Radiators, **V.V.Kaplin**, and S.R. Uglov

- PS2-22. X-Ray Studies of The Distribution Function of Crystalline Grains Over Orientation Angles in Mosaic Crystals, V.I. Alekseev, P.N. Zhukova, E. Irribarra, **A.S. Kubankin**, N.N. Nasonov, R.M. Nazhmudinov, and V.I.Sergienko
- PS2-23. X-Ray Fluorescence Channeling in μ -Capillary Holed Glass Plates, **M.I. Mazuritskiy**, and S.B. Dabagov
- PS2-24. Field emission properties of CNT-based systems, **V. Guglielmotti**, S.Orlanducci, V. Sessa, F. Toschi, M.L. Terranova, and M. Rossi
- PS2-25. X-Ray Refraction 3D-Simulation Software: First Approach, **L. Allocca**, S.B.Dabagov, and L. Marchitto

Wednesday, October 6

University of Ferrara,

Via Savonarola, 9, Ferrara

Session: **S4.3 – X-Ray Channeling & X-Ray Optics & Applications**

Chair: **A. Potylitsyn**

- 9:00–9:25 **F. Frontera**
Crystals for X-/gamma-ray space telescopes /invited/
- 9:30–9:45 E. Buffagni, **C. Ferrari**, L. Zanotti, and A. Zappettini
As Grown and Artificial Mosaic GaAs Crystals for Hard X-Ray Astronomy
- 9:50–10:05 **Yu.L. Pivovarov**
Review on Nuclear and Atomic Resonant Coherent Excitation: 1965–2010
- 10:10–10:25 M.A. Aginian, **K.A. Ispirian**, and M.K. Ispiryani
Kossel and Okorokov Effect Like Processes Produced by Ions and Electrons due to Resonant Excitation and Energy Transfer
- 10:30–10:45 **V.V. Balashov**, A.A. Sokolik, and A.V. Stysin
Kinetics of Resonant Coherent Excitation of Relativistic Highly Charged Ions in Crystals
- 10:50–11:05 **V.I. Vysotskii**, M.V. Vysotsky, and N.V. Maksyuta
Resonant Interaction and the Mechanism of Distant Steady Channeling of Moving Neutral Atoms and Clusters in Space Over a Crystal or Superlattice Surface
- 11:10–11:25 **S.V. Blazhevich**, and A.V. Noskov
Coherent X-radiation of Relativistic Electron on Nano-scale Multilayer Structure in Laue Scattering Geometry,

Excursion (Abbey “Nonantola” & Gallery of Ferrari, Maranello)

Thursday, October 7

University of Ferrara,

Via Savonarola, 9, Ferrara

Session: S2.3 – Channeling Radiation & Related Phenomena

Chair: W. Wagner

9:00–9:25

R. Chehab

POSIPOL: from Polarized and Unpolarized Photons to Positrons
/invited/

9:30–9:45

L. Riboldi, R. Chehab, O. Dadoun, T. Kamitani, F. Poirier, T. Omori, V.

Strakhovenko, T. Suwada, T. Takahashi, J. Urakawa, A. Variola,

and A.

Vivoli

Positron Source using Channeling for the Baseline of the CLIC study

9:50–10:05

K. Lekontsev, G. Blair, G. Boorman, P. Karataev, M. Micheler, R. Corsini,
and T. Lefevre

Longitudinal beam profile diagnostics at CTF3 based on Coherent
Diffraction Radiation

10:10–10:25

A.V. Shchagin

Diagnostics of Channeling and Nonchanneling Fractions of Positive
Particles Beam in Bent Crystal by Focused Parametric X-Rays

10:30–10:45

A.R. Mkrtchyan, A.H. Mkrtchyan, V.R. Kocharyan, A.E. Movsisyan, A.A.
Aslanian, Z.G. Amirhanyan, A.P. Potylitsyn, A.S. Gogoliev, and V.I.
Bespalov

Experimental Investigation of Optical Transition Radiation in the
Amorphous Quartz

Coffee break (20 min)

Session: S3.3 – Channeling & Crystal Collimation

Chair: P. Dalpiaz

11:10–11:35

W. Scandale /On behalf of UA9 collaboration/

First Results on the SPS Beam Collimation with Bent Crystals /invited/

11:40–11:55

F. Murtas, G. Cavoto, and W. Scandale /On behalf of UA9
collaboration/

UA9 Instrumentation and Detectors in the CERN-SPS

12:00–12:15 **A. Petrunin**, V. Ivochkin, and S. Kos'janenko
Channeling Effects Observed in Flat Crystal for 1 GeV Proton Beam

12:20–12:35 **E.N. Tsyganov**
The Mechanism of dd Fusion in Crystals

Lunch (1h 20min)

Session: **S5.1 – Novel Sources: PXR & TR & FEL & Plasma**

Chair: **R. Avagyan**

14:00–14:25 H.D. Thomsen, and **U.I. Uggerhøj**
Measurements of the King-Perkins-Chudakov Effect /invited/

14:30–14:45 **V. Baryshevsky**, A. Gurinovich, E. Gurnevich, and A. Lobko
Generation of Medical X-ray and Terahertz Beams of Radiation Using
Tabletop Accelerators

14:50–15:05 **Yu. Adishev**, A. Wagner, I. Vas'kovskii, A. Vukolov, E. Malikov, V.
Nikolaev, A. Potylitsyn, S. Uglov, G. Chakhlov, and A. Shestak
Source of Monochromatic X-Radiation

15:10–15:25 **M. Gambaccini**, P. Cardarelli, G. Di Domenico, M. Marziani and A. Taibi
X-Ray Characterization of a Tabletop Synchrotron Light Source

15:30–15:45 **H. Yamada**, D. Minkov, Y. Shimura, C. Skourtis, O.K. Ejike, D.Hasegawa,
M. Yamada, T. Hanashima, and K. Atkinson
Directional EUV Radiation Generated by Thin Film Placed in the
Magnetic Field of Tabletop Synchrotron

Coffee break (20 min)

Session: **S5.2 – Novel Sources: PXR & TR & FEL & Plasma**

Chair: **H. Backe**

16:10–16:35 **A.P. Potylitsyn**, D. Krambrich, G. Kube, W. Lauth, Yu.A. Popov, and
L.G. Sukhikh
Experimental Investigations of Backward Transition Radiation
Characteristics in Extreme Ultraviolet Region /invited/

16:40–16:55 **Y. Hayakawa**, K. Hayakawa, M. Inagaki, T. Kuwada, K. Nakao, K.
Nogami, I. Sato, Y. Takahashi, and T. Tanaka
Improvement in Property of Parametric X-ray Radiation by Use of
Wedge-shaped Target Crystal

- 17:00–17:15 **G.A. Naumenko**, A.P. Potylitsyn, L.G. Sukhikh, and Yu.A. Popov
Investigation of the Electron Electromagnetic Field in a Shadow Area
- 17:20–17:35 D.A. Baklanov, T.G. Duong, S.A. Laktionova, R.A. Shatokhin, **I.E. Vnukov**,
and Yu.V. Zhandarmov
Influence of Crystals Mosaicity on Observed Characteristics of X-Ray
Emission along the Propagation Velocity of Fast Electrons in Thick
Tungsten Crystals
- 17:40–17:55 **V.D. Zvorykin**, A.O. Levchenko, I.V. Smetanin, and N.N. Ustinovsky
Long-Distance Transfer of Microwaves in Sliding-Mode Virtual Plasma
Waveguides

18:00–19:00 **Poster Session 3** **Chair: F. Murtas**

- PS3-1. On the Analogies between the Processes of Coherent Radiation at Collisions of
Relativistic Particles with Bunches of Relativistic Particles and with Crystals,
N.F. Shul'ga, and **D.N. Tyutyunnik**
- PS3-2. Investigation of the longitudinal component of an electron electromagnetic field
under condition of the shadowing effect, **G.A. Naumenko**, A.P. Potylitsyn,
L.G.Sukhikh, Yu.A. Popov, and M.V. Shevelev
- PS3-3. Diagnostics of Crystal-Radiator of Positrons by Backward Going X-Rays,
A.V.Shchagin
- PS3-4. Relativistic electron PXR and FPXR ratio in Bragg scattering geometry,
S.V.Blazhevich, and A.V. Noskov
- PS3-5. Experimental test of the shadowing effect in Smith-Purcell radiation,
G.A.Naumenko, A.P. Potylitsyn, L.G. Sukhikh, Yu.A. Popov, and M.V. Shevelev
- PS3-6. Acoustic wave controlled X-ray diffraction and emission processes in crystals,
A.A. Aslanyan, M.S. Ladnykh, A.G. Mkrtchyan, A.R. Mkrtchyan, **N.N. Nasonov**,
and P.N. Zhukova
- PS3-7. Novel Laser via an Inverse Population Generated by Relativistic Electrons,
H.Yamada, and K.E. Okoye
- PS3-8. The Model of Tandem Inversion-Free X-Laser on the Basis of Relativistic
Particles in Crystals Under the Cherenkov Extreme Condition, **M.V.Vysotskyy**,
and V.I.Vysotskii
- PS3-9. Optical Transition Radiation in Amorphous Quartz under the External Acoustic
Filed, **A.R. Mkrtchyan**, A.H. Mkrtchyan, V.R. Kocharyan, P.N. Zhukova,
A.E.Movsisyan, A.A. Aslanian, and Z.G. Amirhanyan

- PS3-10. Angular Distribution and Polarization at Non-Dipole Regime of Radiation by Relativistic Electron in a Thin Crystal, **A.S. Fomin**, and N.F. Shul'ga
- PS3-11. Development of a Beamline for the Study of Interactions between a Relativistic Electron Beam and Crystals at the SAGA Light Source, **Y. Takabayashi**, T. Kaneyasu, and Y. Iwasaki
- PS3-12. Plan for Experimental Comparison of Diffracted Virtual and Real Photons Pattern, **Y. Takabayashi**, K. Ishiji, and A.V. Shchagin
- PS3-13. The coherent Vavilov-Cherenkov Radiation was generated by shot bunches of electrons passing close to the dielectric target as possibility of a bunch length diagnostic, **M.V. Shevelev**, G.A. Naumenko, A.P. Potylitsyn, Yu.A. Popov, and L.G.Sukhikh
- PS3-14. Cherenkov and Transition Radiation from Relativistic Heavy Ions: New Features Caused by Stopping in Radiator, O.V. Bogdanov, and **Yu.L. Pivovarov**
- PS3-15. Coherent Schwinger Scattering of Fast Neutrons versus Coherent Elastic Nuclear Scattering in a Crystal, **Yu.P. Kunashenko**, and Yu.L.Pivovarov
- PS3-16. Combined Effects in Coherent e^+e^- Pairs Production by Photons in a Crystal, K.B. Korotchenko, and **Yu.P. Kunashenko**
- PS3-17. The Anomalous Doppler Effect and Energy-momentum Conservation Law in Radiation Processes, L. Gevorgian, and **V. Vardanyan**
- PS3-18. A model of Parametric X-ray Radiation for application to Diagnostic Radiology, **G. Di Domenico**, P. Cardarelli, A. Comandini, M. Gambaccini, M. Marziani, and A.Taibi
- PS3-19. Short electron bunch length measurements using coherent diffraction radiation interferometry, **A.P. Potylitsyn**, G. A. Naumenko, Yu. A. Popov, L. G. Sukhikh, M.V. Shevelev, and D.V. Shkitov
- PS3-20. Electron beam spectral distribution near the SPARC photoinjector cathode, **A.Podlesnaya**, A. Dik, S.B. Dabagov, and M. Ferrario
- PS3-21. UV and soft X-ray backward Transition Radiation: Dependence on Surface Profile, **M.I. Ryazanov**, M.N. Strikhanov, and A.A. Tishchenko
- PS3-22. The Soft Photon Free Electron Laser by Using a Nanotube Undulator, **L.Gevorkian**, and A. Shamamian

20:00

Social Dinner (Hall "San Francesco")

Friday, October 8

University of Ferrara,

Via Savonarola, 9, Ferrara

Session: S5.3 – Novel Sources: PXR & TR & FEL & Plasma

Chair: V. Baryshevsky

9:00–9:25

D. Giulietti

The Physics of the Laser–Plasma Accelerators: Challenges and Limits /invited/

9:30–9:45

E.G. Bessonov, M.V. Gorbunkov, A.A. Mikhailichenko, and A.L. Osipov
Self-Stimulated Undulator Radiation and Possible Applications

9:50–10:05

M. Ferrario, D. Alesini, A. Bacci, M. Bellaveglia, M. Boscolo, M. Castellano, E. Chiodroni, G. Di Pirro, A. Drago, A. Gallo, G. Gatti, A. Ghigo, M. Migliorati, A. Mostacci, E. Pace, L. Palumbo, A.R. Rossi, C. Vaccarezza, L. Giannessi, C. Ronsivalle, V. Petrillo, L. Serafini, M. Moreno, M. Serluca, A. Cianchi, B. Marchetti, and J. Rosenzweig
Advanced Beam Dynamics Experiments with the SPARC High Brightness Photoinjector

10:10–10:25

L. Giannessi

Seeding Experiments at SPARC

10:30–10:45

L. Gevorgian

The Resonant Transition Radiation (RTR)

Coffee break (20 min)

Session: S5.4 – Novel Sources: PXR & TR & FEL & Plasma

Chair: A. Pathak

11:10–11:35

X. Artru

Bound on the Energy Radiated by Electrons Passing by a Periodic Radiator at Nonzero Impact Parameter /invited/

11:40–11:55

M.I. Ryazanov, M.N. Strikhanov, and A.A. Tishchenko
X-Ray Backward Transition Radiation from Periodical Target

12:00–12:15

V.V. Kaplin, and **S.R. Uglov**

X-rays Generated by Relativistic Electrons in Multilayer Structures

- 12:20–12:35 A. Benedictovich, I. Feranchuk, A. Leonov, and **A. Lobko**
Induced Parametric Beam Instability in Conditions of Grazing Geometry
- 12:40–12:55 **L.Sh. Grigoryan**, H.F. Khachatryan, and S.R. Arzumanyan
Self-amplified Emission of Cherenkov Radiation from a Relativistic
Particle Inside Layered Dielectric-filled Waveguide
- 13:00–13:15 **E. Bulyak**
Properties and Feasibilities of Gamma-Ray Radiation from Compton
Sources
- 13:20–14:00 **Closing**