



**** Advance Program ****

2 July

19:00 – Get-together Party (Scuderie Aldobrandini)

3 July (Aula Touschek - LNF)

8:00 - Registration

9:00-9:30 - Opening session

S1: "Coherent Scattering & Bremsstrahlung"

Session 1.1 Chair: X. Artru

9:30-9:55 V.N.Baier, and V.M. Katkov

Coherent and Incoherent Radiation from High-Energy Electron and the LPM Effect in Oriented Single Crystal (Invited)

10:00-10:15 S.P.Fomin

The LPM and Similar Effects at High Energy in Matter

10:20-10:35 P. Grabmayr

Shape Analysis of Coherent Bremsstrahlung for Photon Polarimetry

10:40-10:55 A.P. Potylitsyn, and I.S. Tropin

Coherent Bremsstrahlung in Thick Crystals. Radiation Loss and Photon Multiplicity

11:00-11:25 – Coffee break

S2: "Relativistic Channeling & Related Phenomena"

Session 2.1 Chair: W. Greiner

11:30-11:55 A.V. Solov'yon, A.V. Korol, and W. Greiner

Photon Emission from a Crystalline Undulator (Invited)

12:00-12:25 R. Avakian

Channeling Radiation of 20 MeV Electrons under Influence or Periodic Deformation in Quartz Crystal (Invited)

- 12:30-12:45 **B. Azadegan, W. Wagner, and J. Pawelke**
Planar Electron Channeling Radiation from Quartz
- 12:50-13:05 **V.I. Efremov, and Yu.L. Pivovarov**
Orientation Dependence of the Multiple Scattering of Relativistic
Particles in a Crystal: a Computer Experiment
- 13:10-13:25 **J. George, and A.P. Pathak**
Effects of Transverse Periodic Perturbation on Channeling Radiation

13:30-14:55 – Lunch

S3: “Novel Sources: PXR & Cherenkov & Compton & FEL & Plasma”

Session 3.1 Chair: I. Endo

- 15:00-15:25 **E.G. Bessonov**
Light Sources Based on Relativistic Electron and Ion Beams (Invited)
- 15:30-15:55 **H.Backe, W. Lauth, A.F. Scharafutdinov, P. Kunz, M. Tabrizi, T. Weber, A.S. Gogolev, and A.P. Potylitsyn**
Observation of Forward Diffracted Parametric X Radiation From Single
Crystals at Ultrarelativistic Electron Energy (Invited)
- 16:00-16:15 **A. Lobko, N. Nasonov, H. Park, M. Piestrup, and P. Zhukova** Peculiarities in
Parametric X-Rays for Grazing Incidence of Emitting Electrons onto the
Reflecting Plane or the Surface of the Target
- 16:20-16:35 **A. Lobko, and O. Lugovskaya**
Numerical Simulation of a PXR Source

16:40-17:05 - Coffee break

S3: “Novel Sources: PXR & Cherenkov & Compton & FEL & Plasma”

Session 3.2 Chair: G. Mazzitelli

- 17:10-17:25 **K.G. Batrakov, I.D. Feranchuk, O.M. Lugovskaya, and S.N.Sytova**
Simulation of PXR and CBS Spectra for Non-relativistic Electrons in Thin
Crystals
- 17:30-17:45 **N.F.Shul'ga, and D.N. Tyutyunnik**
Scattering and Radiation at Beam-Beam Collisions
- 17:50-18:05 **M. Castellano, E. Chiadroni, A. Cianchi, K.Honkavaara, and G.Kube**
Status of the Electron Beam Transverse Diagnostics with Optical Diffraction
Radiation at the DESY FLASH Facility

4 July (Aula Touschek - LNF)

S4: "Channeling & Crystal Collimation"

Session 4.1 Chair: L. Palumbo

- 9:00-9:25 E. Tsyganov
Historical Perspective and First Experiments with Bent Crystals (Invited)
- 9:30-9:55 W. Scandale
On Perspectives for Crystal Collimation (Invited)
- 10:00-10:15 D.Still, N. Mokhov, V. Shiltzev, R. Filler, R. Carrigan, V.Biryukov, Y. Chesnokov, and Y. Ivanov
Channeling Collimation Studies at the Fermilab Tevatron
- 10:20-10:35 I.A.Yazynin, A.G.Afonin, V.I.Kotov, V.A.Maishev, and Yu.A.Chesnokov
Outlooks of Usage the Volume Reflection Effect in Crystals at Protvino
- 10:40-10:55 S. Stokov, V. Biryukov, Yu. Chesnokov, I. Endo, M. Iinuma, H. Kuroiwa, T. Ohnishi, H. Sato, S. Sawada, T. Takahashi, and K. Ueda
Proton Beam Deflection Using Silicon Crystal at KEK Proton Synchrotron

11:00-11:25 – Coffee break

S4: "Channeling & Crystal Collimation"

Session 4.2 Chair: W. Scandale

- 11:30-11:55 R.A. Carrigan, Jr.
Fundamental Channeling Questions at Ultra Relativistic Energies (Invited)
- 12:00-12:25 A.M. Taratin
Volume Reflection of Relativistic Charged Particles in Bent Crystals (Invited)
- 12:30-12:45 Yu. Ivanov
Observation of the Volume Reflection Effect in Bent Crystals
- 12:50-13:05 V.Guidi
Preparation of Crystals for Channeling Relativistic Particles
- 13:10-13:25 A. Carnera, E.Boscolo Marchi, G. Della Mea, D. De Salvador, V. Guidi, G.Martinelli, A. Mazzolari, E. Milan, R. Milan, A. Sambo, W.Scandale, A.Vomiero
Lattice Perfection and Surface Morphology of Bent Crystals for Proton Channeling at Relativistic Energies

13:30-14:55 – Lunch

S4: "Channeling & Crystal Collimation"

Session 4.3 Chair: Kh. Chouffani

- 15:00-15:25 Yu.L. Pivovarov
Resonant Coherent Excitation : 40 Years after Prediction (Review) (Invited)
- 15:30-15:55 U. Uggerhoj

Channeling of Heavy Ions in Bent Crystals (*Invited*)

16:00-16:15 V. Tikhomirov

On the Halo Cleaning at the LHC by Crystals

16:20-16:35 M. Fiorini, P. Dalpiaz, V. Guidi, E. Milan, I. Efthymiopoulos, L. Gatignon, W. Scandale, Y. Chesnokov, A.M. Taratin, Y.M. Ivanov, G. Della Mea, R. Milan, A. Vomiero, A. Carnera, A. Sambo, G. Ambrosi, B. Bertucci, W.J. Burger, R. Battiston, and R. Santacesaria

Experimental Apparatus to Study Crystal Channeling in an External SPS Beamline

16:40-17:05 - Coffee break

S4: "Channeling & Crystal Collimation"

Session 4.4 Chair: M. Ferrario

17:10-17:25 Zhu Zhiyuan, Cao Jianqing, Gong Jinglong, Xia Huihao, and Zhu Dezhang
2 MeV He + Beam Spot Arrays Transported through CNTs in AAO

17:30-17:45 Yu.L. Pivovarov

Electromagnetic Dissociation of Relativistic Weakly Bound Nuclei under Channeling in Crystals

17:50-18:05 A.M. Rasulov

Ion Channeling and Implantation into Cu(100) and Cu₃Au(100)

19:00 Evening by Comune di Frascati: Visit to Villa Falconieri

5 July (Aula Touschek - LNF)

S3: "Novel Sources: PXR & Cherenkov & Compton & FEL & Plasma"

Session 3.3 Chair: L. Serafini

9:00-9:25 D. Giulietti

Novel Types of Ionizing Radiation Sources at LNF-PLASMONX Facility (*Invited*)

9:30-9:55 X. Artru, and C.Ray

Generation of Photons in a Thin Optical Fiber Traversed or Skimmed by a Relativistic Charged Particle (*Invited*)

10:00-10:25 N.K. Zhevago, and V.I. Glebov

Cherenkov UV and X-ray Radiation in Highly Pressurized Gases (*Invited*)

10:30-10:45 Y. Hayakawa, K. Hayakawa, M. Inagaki, T. Kuwada, A. Mori, K. Nakao, K. Nogami, T. Sakae, T. Sakai, I. Sato, Y. Takahashi, and T. Tanaka (*Invited*)

Advanced Applications of PXR at LEBRA, Nihon University

- 10:50-11:05 M.D. Bavizhev, R.M. Goshokov, and V.V. Skubarev
The Possible Version of Gamma- Rays Beam on Proton Accelerator
- 11:10-11:25 M.A. Aginian, L.A. Gevorgian, K.A. Ispirian, and M.K. Ispiryan
Properties of X-Ray Cherenkov Radiation Produced by Charged Particles in Multilayers Si/Mo

11:30-12:30 – Visiting LNF Facilities

12:30-13:30 – Buffet (Soft Lunch)

13:30-19:00 – Excursion to Tivoli (Villa Adriana)

6 July (Aula Touschek - LNF)

S3: " Novel Sources: PXR & Cherenkov & Compton & FEL & Plasma "

Session 3.4 Chair: A. Giulietti

- 9:00-9:25 R.D. Ruth, J. Rifkin, and R.Loewen
Testing the Compact Light Source: A Miniature Synchrotron Light Source for the Homelab (Invited)
- 9:30-9:55 S.M. Hooker, A.J. Gonsalves, B. Nagler, Cs. Tóth, K. Nakamura, C.G.R.Geddes, E. Esarey, C. B. Schroeder, and W. P. Leemans
Gas-Filled Capillary Discharge Waveguides for Guiding High-Intensity Laser Pulses and Generating GeV Electron Beams (Invited)
- 10:00-10:15 S.Yu. Gus'kov, and V.B. Rozanov
Advanced Approaches to Laser-Produced Plasma Emission Controlling
- 10:20-10:35 L. Serafini
Design of the Thomson Source at SPARC/PLASMONX for Incoherent and Coherent X-Rays
- 10:40-10:55 L. Giannessi
Future Seeding Experiments at SPARC

11:00-11:25 – Coffee break

S1: "Coherent Scattering & Bremsstrahlung "

Session 1.2 Chair: L. Terranova

- 11:30-11:55 H. Überall
Coherent Bremsstrahlung Used for Digital Subtraction Angiography(Invited)
- 12:00-12:25 S.Araki, A.Aryshev, N.Terunuma, J.Urakawa, G.Naumenko, A.Potylitsyn, P.Karataev

Optical Diffraction Radiation Beam Size Monitor at KEK Accelerator Test Facility
(Invited)

- 12:30-12:45 **N.Nasonov, P. Zhukova, and N.Gostishchev**
Anomalous Density Effect in Polarization Bremsstrahlung from Relativistic Electrons Moving Through Solid Targets
- 12:50-13:05 **V. Astapenko, V. Khablo, A. Kubankin, N. Nasonov, V. Polyansky, G.Pokhil, V. Sergienko, and P. Zhukova**
Polarization Bremsstrahlung from Relativistic Electrons for Medium Structure Diagnostics
- 13:10-13:25 **A.A. Babaev**
Spin Effects in the Electron and Positron Planar Channeling

13:30-14:55 – Lunch

S5: "Channeling: X-Rays & X-Ray Optics"

Session 5.1 Chair: G. Cappuccio

- 15:00-15:25 **P.A. Childs, S.Y. Ong, W.I. Milne, K.B.K. Teo, N.Shang, L.Gangloff, A.D. Smith, and A.G. O'Neill**
X-Ray Propagation in Carbon Nanotubes (Invited)
- 15:30-15:55 **S.V. Kukhlevsky**
Spatiotemporal Localization of Coherent and Incoherent X-Rays by Mono- and Polycapillary Optics: from Micrometer/Second to Nanometer / Attosecond (Invited)
- 16:00-16:15 **A.V. Shchagin**
Focusing of X-Rays from Particles Channeling in Bent Crystal
- 16:20-16:35 **D. Hampai, G.A. Cibir, S. Dabagov, and G. Cappuccio**
X-Ray Channeling in Capillaries for 3D Imaging

16:40-17:05 - Coffee break

S5: "Channeling: X-Rays & X-Ray Optics"

Session 5.1 Chair: A. Esposito

- 17:10-17:25 **V. Sessa, A. Ciorba, A. Fiori, M. Lucci, S. Orlanducci, M.L. Terranova, G. Cappuccio, D. Hampai, and M. Rossi**
CNTs Cold Cathodes for Miniature X-Ray Tube
- 17:30-17:45 **V.V.Belavin, A.V. Okotrub, A.G. Kudashov, L.G. Bulusheva, and A.V. Gusel'nikov**
Texture of Aligned Carbon Nanotube Films Measured by Angle-Resolved X-Ray Emission and X-Ray Absorption
- 17:50-18:05 **I. Boscolo, S. Cialdi, L. Cultrera, D. Cipriani, V.Sessa, S. Orlanducci, A. Fiori, and M.L.Terranova**

Tests on Diamond Films as Current Amplifier for Photo Cathodes

20:00 – Conference Social Dinner

7 July (Aula Touschek - LNF)

S2: "Relativistic Channeling & Related Phenomena"

Session 2.2 Chair: A. Potylitsyn

- 9:00-9:25 A.P. Pathak
Channeling Radiation Studies of Defects and Strains in Heterostructures
(Invited)
- 9:30-9:55 N.F. Shul'ga
Coherent Scattering and Radiation of Relativistic Electrons in Crystals
(Proposal for SPARC) (Invited)
- 10:00-10:15 N. Maslov, S. Dabagov, V. Kulibaba, N. Shul'ga, A. Starodubtsev,
L. Palumbo, M. Ferrario, and L. Serafini
Proposal of Techniques Creation for Intensive X-Ray Source R&D on the
SPARC Facility
- 10:20-10:35 V.B. Ganenko, A.A. Greenenko, N.F. Shul'ga, and V.I. Truten'
Spectral and Polarization Characteristics of Electron Radiation in Crystal
- 10:40-10:55 S.P.Fomin, N.F. Shul'ga and V.I. Truten'
Channeling and Close Collision Processes in a Crystal

11:00-11:25 – Coffee break

S3: " Novel Sources: PXR & Cherenkov & Compton & FEL & Plasma "

Session 3.5 Chair: C. Petrascu

- 11:30-11:55 L.A. Gizzi
Optimization and Control of Ultrashort, Laser-Driven X-Ray Source (Invited)
- 12:00-12:25 Kh. Chouffani
Generation and Application of Laser-Compton Scattering from Intermediate
Energy Electron Beams (Invited)
- 12:30-12:45 K.A. Ispirian, and R.K. Ispiryan
Some Possible X-Ray Production and High Energy Physics Experiments
with Carbon Nanotubes
- 12:50-13:05 A.H. Shamamyan, and L.A. Gevorgyan
Coherent Radiation of the Modulated Electron Bunch in Helical Undulators
- 13:10-13:25 A. Gamucci, M. Galimberti, D. Giulietti, L.A. Gizzi, T. Hosokai, L. Labate,
C. Petcu, P. Tomassini, and A. Giulietti
Production of Plasma Channels in Gas-Jets

13:30-14:55 – Lunch

S3: " Novel Sources: PXR & Cherenkov & Compton & FEL & Plasma "

Session 3.6 Chair: S. Dabagov

15:00-15:25 L. Palumbo

SPARC and SPARX FEL Projects (Invited)

15:30-15:45 K.S. Gus'kov, S.Yu. Gus'kov, K.N. Makarov, V.B. Rozanov, and Yu.A.Satov

Laser Radiation Wavelength Effect on the Properties of Laser-Produced Plasma Radiation Source

15:50-16:05 M. Ferrario

Short Electron Pulses from RF Photoinjectors for Advanced Accelerator Concepts

16:10 Closing

Poster session (will be organized either on July 4 or July 6)

- Y.N. Adishev, K.V. Afanasiev, A.V. Vukolov, and A.P. Potylitsyn Monochromatization of High-current Nanosecond Pulse Source Bremsstrahlung X-Ray Radiation
- L. Catani, E. Chiadroni, A. Cianchi, P. Musumeci, M. Boscolo, M. Castellano, G. Di Pirro, M. Ferrario, D. Filippetto, and C. Vaccarezza Characterization of the SPARC Photo-injector with the Movable Emittance Meter
- Yu.L. Bolotin, V.A. Cherkaskiy, and N.F. Shul'ga Quantum Chaos in the Axial Channeling
- Yu.I. Dudchik X-Ray Imaging with Spherical Compound Refractive Lens
- G. Cappuccio, S.B. Dabagov, D. Hampai, Yu.I. Dudchik, and F.F. Komarov Using of Spherical Compound Refractive X-Ray Lens to Control X-Ray Beams
- M.A. Aginian, and K.A. Ispirian Monte Carlo Calculations of Ionization Energy Losses of Particles Channeled in Nanotubes
- A.V. Korol, A.V. Solov'yov, and W. Greiner Optimal Length of a Crystalline Undulator
- V.P. Lapko, and N.F. Shul'ga On One Possibility of Positron Source Efficiency Increasing
- A. Antonini, V. Guidi, G. Martinelli, and E. Milan Fabrication of Devices for a Channelling-Based High-Energy Micro-Beam
- A. Antonini, M. Butturi, V. Guidi, G. Martinelli, A. Mazzolari, and E. Milan Silicon Micromachining Techniques as a Tool to Fabricate Channelling-Based Devices

- V. Khablo, A. Kubankin, N. Nasonov, H. Park, M. Piestrup, and V. Sergienko Cherenkov X-Radiation from Low Energy Electrons
- G.R. Alimov, M.A. Kumakhov, A.T. Muminov, T.M. Muminov, B.S. Osmanov, A.N. Safarov, V.V. Skvortsov, R.D. Suleymanov, and B.S. Yuldashev Propagation of Electron Bremsstrahlung Beam with E=13 MeV in Air
- M. Petrarca, P. Musumeci, I. Boscolo, S. Cialdi, G. Gatti, A. Ghigo, and C. Vicario Production of Temporally Flat Top UV Laser Pulses for SPARC Photoinjector
- Status of the SPARC Project L. Serafini, D.Alesini, S.Bertolucci, M. Bellaveglia, M.E.Biagini, R.Boni, M.Boscolo, M.Castellano, A.Clozza, G.Di Pirro, A.Drago, A.Esposito, M.Ferrario, L. Ficcadenti, D. Filippetto, V.Fusco, A.Gallo, G.Gatti, A.Ghigo, S.Guiducci, M.Incurvati, C.Ligi, F.Marcellini, M.Migliorati, A.Mostacci, L.Palumbo, L.Pellegrino, M.Preger, R.Ricci, C.Sanelli, M.Serio, F.Sgamma, B.Spataro, A.Stecchi, A.Stella, F.Tazzioli, C.Vaccarezza, M.Vescovi, C.Vicario, F.Alessandria, A.Bacci, I.Boscolo, F.Broggi, S.Cialdi, C.DeMartinis, D.Giove, C.Maroli, M. Mauri, V.Petrillo, M.Romè, D.Levi, M.Mattioli, G.Medici, P. Musumeci, D. Pelliccia, M. Petrarca, A. Cianchi, L.Catani, E.Chiadroni, E. Gabrielli, S.Tazzari, F.Ciucci, G.Dattoli, A. Dipace, A.Doria, F.Flora, G.P.Gallerano, L.Giannessi, E.Giovenale, G.Messina, P.L.Ottaviani, S.Pagnutti, G.Parisi, L.Picardi, M.Quattromini, A.Renieri, G.Ronci, C.Ronsivalle, M.Rosetti, E.Sabia, M.Sassi, A.Torre, A.Zucchini, S. De Silvestri, M. Nisoli, S. Stagira, J.B. Rosenzweig, D.H. Dowell, P.Emma, C.Limborg, and D.Palmer
- A.V. Shchagin, V.I. Nagaychenko, V.V. Sotnikov, B.I. Ivanov, and A.M. Yegorov Pyroelectric Accelerator
- G.D. Tolstolutsкая, I.E. Kopanets, and I.M. Neklyudov Radiation Damage, Range Distribution and Site Location Measurements of Ar, Kr, Xe in Ni after Implantation and Annealing by Using Channeling Technique
- L. Quintieri, G. Mazzitelli, S.B. Dabagov Beam Test Facility for Channeling Studies
- C. Vaccarezza, D. Alesini, M. Bellaveglia, S. Bertolucci, M. E. Biagini, R. Boni, M. Boscolo, M. Castellano, A. Clozza, G. Di Pirro, A. Drago, A. Esposito, M. Ferrario, D. Filippetto, V. Fusco, A. Gallo, A. Ghigo, S. Guiducci, M. Migliorati, L. Palumbo, L. Pellegrino, M. Preger, C. Sanelli, M. Serio, F. Sgamma, B. Spataro, A. Stella, F. Tazzioli, M. Vescovi, C. Vicario, F. Ciucci, G. Dattoli, A. Doria, F. Flora, G.P. Gallerano, L. Giannessi, E. Giovenale, G. Messina, P.L. Ottaviani, G. Parisi, L. Picardi, M. Quattromini, A. Renieri, C. Ronsivalle, S. Cialdi, C. Maroli, V. Petrillo, M. Rome, L. Serafini, L. Catani, E. Chiadroni, A. Cianchi, C. Schaerf, P. Musumeci, F. Alessandria, A. Bacci, F. Broggi, C. De Martinis, D. Giove, M. Mauri, L. Ficcadenti, M. Mattioli, A. Mostacci, P. Emma, S. Reiche, and J. Rosenzweig Status of the SPARX FEL Project
- C. Vicario, G. Gatti, A. Ghigo, P. Musumeci, and M. Petrarca Commissioning of the Laser System for SPARC Photoinjector