

IX International Symposium on Radiation from Relativistic Electrons in Periodic Structures (RREPS-2011)

Journal of Physics: Conference Series Volume 357

**Egham, United Kingdom
12-16 September 2011**

Editors:

**Alexander Potylitsyn
Pavel Karataev**

**ISBN: 978-1-62276-774-8
ISSN: 1742-6588**

Printed from e-media with permission by:

Curran Associates, Inc.
57 Morehouse Lane
Red Hook, NY 12571



Some format issues inherent in the e-media version may also appear in this print version.

Copyright© (2011) by the Institute of Physics
All rights reserved.

Printed by Curran Associates, Inc. (2013)

For permission requests, please contact the Institute of Physics
at the address below.

Institute of Physics
Dirac House, Temple Back
Bristol BS1 6BE UK

Phone: 44 1 17 929 7481
Fax: 44 1 17 920 0979

techtracking@iop.org

Additional copies of this publication are available from:

Curran Associates, Inc.
57 Morehouse Lane
Red Hook, NY 12571 USA
Phone: 845-758-0400
Fax: 845-758-2634
Email: curran@proceedings.com
Web: www.proceedings.com

TABLE OF CONTENTS

GENERAL PROPERTIES OF RADIATION FROM RELATIVISTIC PARTICLES

012001 Annular Cherenkov High Gradient Wakefield Accelerator: Beam-Breakup Analysis and Energy Transfer Efficiency	1
<i>A M Altmark, A D Kanareykin</i>	
012002 New Peculiarities in Angular Distribution of Cherenkov Radiation from Relativistic Heavy Ions Caused by Their Stopping in Radiator: Numerical and Theoretical Research	9
<i>E I Fiks, O V Bogdanov, Y L Pivovarov</i>	
012003 Method of Particle Energy Determination Based on Measurement of Waveguide Mode Frequencies	17
<i>A V Tyukhtin</i>	
012004 Self-amplified Cherenkov Radiation from a Relativistic Electron in a Waveguide Partially Filled with a Laminated Material	25
<i>L S Grigoryan, A R Mkrchyan, H F Khachatryan, S R Arzumanyan, W Wagner</i>	
012005 Direct Observation of a Semi-Bare Electron Coulomb Field Recover	33
<i>G Naumenko, Y Popov, M Shevelev</i>	
012006 Radiation of a Charge Moving in Wire Metamaterial Perpendicularly to the Main Axis	40
<i>V V Vorobev, A V Tyukhtin</i>	
012007 Spin Light of a Neutron in Classical and Quantum Theories	46
<i>V A Bordovitsyn, O A Konstantinova</i>	
012008 Radiation from a Charged Particle Flying Through a Dielectric Ball	52
<i>S R Arzumanyan</i>	
012009 Synchrotron Radiation Inside a Dielectric Waveguide	58
<i>A S Kotanjyan, A A Saharian</i>	

TRANSITION RADIATION

012010 Radiation of a Charge in a Waveguide with a Boundary between Two Dielectrics	65
<i>T Y Alekhina, A V Tyukhtin</i>	
012011 Diffracted Transition Radiation of a Relativistic Electron in the Artificial Periodic Multilayer Medium	72
<i>S Blazhevich, I Kolosova, A Noskov</i>	
012012 Setup for Study of Radiation in VUV Region Generated by 5.7 MeV Electrons in a Multilayer Mirror	81
<i>S R Uglov, V N Zabaev, V V Kaplin, S I Kuznetsov</i>	
012013 Optical Transition Radiation in Presence of Acoustic Waves for an Oblique Incidence	88
<i>A R Mkrchyan, V V Parazian, A A Saharian</i>	
012014 High Frequency Transition Radiation from Uniaxial Crystal	95
<i>E Glazkova, M Ryazanov, M Strikhanov</i>	
012015 Transition Radiation from Graphene	101
<i>V M Sukharev, M N Strikhanov, A A Tishchenko</i>	

PARAMETRIC X-RAY RADIATION

012016 Coherent X-radiation Along the Velocity of a Relativistic Electron in a Bounded Periodic Multilayer Medium	108
<i>S Blazhevich, I Kolosova, A Noskov</i>	
012017 Bremsstrahlung of Fast Electron on Graphene	116
<i>V A Astapenko, Y A Krotov</i>	
012018 A Possibility of Transverse Beam Size Diagnostics Using Parametric X-ray Radiation	124
<i>A Gogolev, A Potylitsyn, G Kube</i>	

DIFFRACTION RADIATION, SMITH-PURCELL EFFECT

012019 Non-intercepting Diagnostic for High Brightness Electron Beams Using Optical Diffraction Radiation Interference (ODRI)	130
<i>A Cianchi, V Balandin, M Castellano, L Catani, E Chiadroni, G Gatti, N Golubeva, K Honkavaara, G Kube</i>	
012020 Experimental Research of the Diffraction and Vavilov-Cherenkov Radiation Generation in a Teflon Target	137
<i>M Shevelev, G Naumenko, A Potylitsyn, Y Popov</i>	
012021 Investigation of Coherent Diffraction Radiation from a Dual Target System at CTF3	143
<i>K Lekomtsev, G Boorman, R Corsini, P Karataev, T Lefevre</i>	
012022 PIC Code KARAT Simulation of Different Types of Polarization Radiation Generated by Relativistic Electron Beam	153
<i>K P Artyomov, V V Ryzhov, G A Naumenko, M V Shevelev</i>	
012023 Sub-millimeter Bunch Length Non-invasive Diagnostic Based on the Diffraction and Cherenkov Radiation	161
<i>M Shevelev, H Deng, A Potylitsyn, G Naumenko, J Zhang, S Lu, S Gogolev, D Shkitov</i>	

COHERENT BREMSSTRAHLUNG AND CHANNELING RADIATION

012024 An Event Generator for Crystal Source Application of the CLIC Positron Baseline	167
<i>O Dadoun, G L Meur, F Touze, A Variola, X Artru, R Chehab, M Chevallier, V Strakhovenko</i>	
012025 Planar Positron Channeling Radiation Generated in an Acoustic Superlattice	175
<i>B Azadegan, L S Grigoryan, W Wagner</i>	
012026 Incoherent Bremsstrahlung in Flat and Bent Crystals	183
<i>N F Shul'Ga, V V Syshchenko, A I Tarnovsky</i>	
012027 Planar Channeling Radiation by Relativistic Electrons in Different Structures of Silicon Carbide	189
<i>B Azadegan, S B Dabagov, W Wagner</i>	
012028 Channeling of 20-35 MeV Electrons in Si Substrates of Multilayer Structures	197
<i>V V Kaplin, S R Uglov, A A Voronin</i>	
012029 Radiation Spectra of Channeled Electrons in Thick Si (111) Crystals	204
<i>O V Bogdanov, S B Dabagov</i>	

CRYSTAL ASSISTED PROCESSES

012030 Peculiarities of Angular Distribution of Electrons at Si <100> Channeling	212
<i>O V Bogdanov, Y L Pivovarov, Y Takabayashi, T A Tukhfatullin</i>	
012031 Acoustic "Pumping Effect" for Quartz Monochromators	219
<i>A Gogolev, S Stuchebrov, A Wagner, Y Cherepennikov, A Potylitsyn</i>	
012032 Inelastic Nuclear Interactions at Protons Multiple Passage in Bent Crystals	223
<i>A Babaev, S B Dabagov</i>	
012033 Structure of Below-barrier and Above-barrier Energy Bands and Wave Functions of a Particle in the Periodic Potential of Crystalline Lattice	231
<i>E A Babakhanyan</i>	

APPLICATIONS OF MONOCHROMATIC X-RAY AND GAMMA BEAMS PRODUCED AT ELECTRON ACCELERATORS

012034 The THz Radiation Source at SPARC	237
<i>E Chiadroni, A Bacci, M Bellaveglia, P Calvani, M Castellano, A Cianchi, G Di Pirro, M Ferrario, G Gatti, O Limaj, S Lupi, B Marchetti, A Mostacci, D Nicoletti, A Nucara, E Pace, C Ronsivalle, A R Rossi, C Vaccarezza</i>	
012035 Compact X-ray Source at STF (Super Conducting Accelerator Test Facility)	243
<i>J Urakawa</i>	
012036 Estimation of Grains Size in Mosaic Crystals by Means of Radiation of Fast Electrons in These Samples	247
<i>D A Baklanov, S A Laktionova, R A Shatokhin, I E Vnukov</i>	
012037 Microbunch Instability Observations from a THz Detector at Diamond Light Source	255
<i>W Shields, R Bartolini, G Boorman, P Karataev, A Lyapin, J Puntree, G Rehm</i>	

012038 Several Hundred Femto-second Soft X-ray Source in Compact Several Meter Facility	263
<i>J Urakawa</i>	
012039 The TPLUS Project : A Table-Top Tunable Parametric UV Radiation Source.....	268
<i>J -M André, G Turk, K L Guen, P Jonnard, F Delmotte, S De Rossi, A Jérôme, A -L Coutrot</i>	
Author Index	