

## CURRICULUM VITAE

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### Personal

Birth-date: March 23, 1950 (Moscow, Russia)  
Languages: Russian (native), English (proficient)

### Experience and Fields of Interest

- Object-Oriented Software for Simulation in High Energy Physics, Astrophysics and Medical Imaging (geometry, electro-magnetic physics, tracking in electro-magnetic fields, mathematical algorithms)
- GEANT4 Development, Documentation, and Applications
- Operating Systems: Unix/Linux, Windows NT/2000. Programming: C++, Java, FORTRAN
- Physics of Relativistic Particle Interaction with Matter  
Physical Processes in Particle Detectors

### Positions and Activities

2002 - today Principal Researcher at Lebedev Institute  
- Relativistic Particle Energy Loss Models in Matter  
- Muon Beam Ionisation Cooling  
- GEANT4 Applications for Biology, Medicine and Space Researches  
1999 - 2002 Project Associate at CERN (GEANT4 )  
- GEANT4 X-ray Transition Radiation Library  
- Contribution to X-ray Transition Radiation Theory  
- GEANT4 Boolean Solid Library  
- GEANT4 Tracking in Time Dependent Electro-Magnetic Fields  
1997 - 1999 Leading Researcher at Lebedev Institute

- Investigation of Gas Electron Multipliers with Semi-Conducting Coatings
  - Contribution to X-ray Synchrotron Radiation Theory
- 1996 - 1997 Scientific Associate at CERN (GEANT4 )
- GEANT4 Constructive Solid Geometry Library
  - GEANT4 Library of Mathematical Algorithms
  - GEANT4 Library for Tracking in Magnetic Fields
- 1989 - 1996 Senior Researcher, Head of Group at Lebedev Institute
- GEANT3 and GEANT4 Implementations of Energy Loss Models
  - Contributions to Ionisation Energy Loss Theory
  - Experimental Investigation of Ionisation Effects in Particle Detectors
  - Investigation of Micro-strip Gas Chambers with Semi-Conducting Coatings
- 1973 - 1989 Engineer, Researcher at Lebedev Institute
- Experimental Investigation of Ionisation Effects in Noble Gases
  - Experimental Investigation of X-ray Radiation from Laser Plasma
  - Design and Construction of Experimental Setups (vacuum, cryogenics, high voltage systems, particle detectors)

#### **Current Collaborations**

- GEANT4 Simulation Toolkit  
The GEANT4 Collaboration Board Member
- GEANT4-ATLAS Physics Validation Project  
Software Consulting
- The Hadron Production Experiment at PS CERN (HARP, PS214)  
The HARP Collaboration Board Member  
Software Consulting
- International Muon Ionisation Cooling Experiment (MICE)  
Simulation and Reconstruction Software Development

#### **Education and Teaching**

- 2002 Lecture course for Ph.D students at Lausanne University - EPFL:  
'Electro-magnetic Interactions of Relativistic Charged Particles with Matter'
- 2001 Professor at Lebedev Institute (supervision of Ph.D. dissertations and contributions to the physics of particle interactions with matter)
- 1998 Prof. thesis (Habilitation) at Lebedev Institute: "Methods of Relativistic Particle Identification in Gaseous Detectors"
- 1994 Lecture course for Ph.D students at Purdue University IN:  
'Physics of Particle Identification'
- 1989 Ph.D. at Lebedev Institute: "Investigation of Ionisation Energy Losses Produced by

Relativistic Electrons in Gas Scintillation Proportional Chamber”

1973 Graduated from Moscow Physics Engineering Institute (Technical University), Honour Diploma

1967 Graduated from Special Physics Mathematics School-College, Silver Medal

#### Recent Conferences

- Fourth Workshop on RICH Detectors  
Pylos, Greece, June 5-10, 2002  
'Cherenkov Energy Loss and Particle Identification'
- GEANT4 Users Workshop, SLAC, Feb. 18-22, 2002  
Invited speaker: 'Relativistic Particle Energy Loss'
- 7th International Conference on Advanced Technology and Particle Physics  
Como, Oct. 15-19, 2001  
'GEANT4 Simulation of X-ray Transition Radiation'
- The Future of Particle Physics  
Snowmass CO, July 1-21, 2001  
Invited speaker: 'GEANT4 for Accelerator Studies'
- Monte Carlo 2000 Conference  
Lisbon, Oct. 23-26, 2000  
'Fast Simulation of X-ray Transition Radiation in the GEANT4 Toolkit',  
'GEANT4 Electro-Magnetic Physics'

#### References

- Dr. John Apostolakis  
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- Prof. Makoto Asai  
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#### List of Selected Publications

(the total number of publications is roughly  $\gtrsim 80$  on November, 2002)

My name is spelled GRISHIN in English and GRICHINE in French

- V.M. Grichine, Radiation of Accelerated Charge in Absorbing Medium, Preprint CERN-OPEN-2002-056, September 23, 2002, 20 p.
- V.M. Grichine, On the Energy-Angle Distribution of Cherenkov Radiation in an Absorbing Medium, Nucl. Instr. and Meth., A482 (2002) 629
- V.M. Grichine, Generation of X-ray Transition Radiation inside Complex Radiators, Phys. Lett., B525 (2002) 225
- V.M. Grichine, On Irreducible Fluctuations of Cherenkov Radiation, Nucl. Instr. and Meth., A463 (2001) 418
- A.V. Bagulya, V.M. Grichine, Detection of X-ray Transition Radiation by the Threshold Efficiency Method, Nucl. Instr. and Meth., A459 (2001) 377
- J. Apostolakis, S. Giani, V.M. Grichine et al., Parametrisation models for X-ray Transition Radiation in the GEANT4 package, Comp. Phys. Comm., 132 (2000) 241
- J. Apostolakis, S. Giani, V.M. Grichine et al., Implementation of ionisation energy loss in very thin absorbers for the GEANT4 package, Nucl. Instr. and Meth., A453 (2000) 597
- A.V. Bagulya, S. Giani, V.M. Grichine, Synchrotron Radiation Energy Loss Distribution, Nucl. Instr. and Meth., A452 (2000) 179
- A.V. Bagulya, S. Giani, V.M. Grichine, X-ray Synchrotron Radiation in Medium, Physics Lett., B460 (1999) 467
- V.M. Grichine, Density Effect for the X-ray Synchrotron Radiation in a Medium, Nucl. Instr. and Meth., A436 (1999) 445
- M.R. Bishai, V.M. Grishin, I. Shipsey et al., Micro-strip Gas Chambers Over-coated with Carbon, Hydrogenated Amorphous Silicon, and Glass Films, Nucl. Instr. and Meth., A400 (1997) 233
- GEANT-4 : an Object-Oriented toolkit for simulation in high energy physics (RD44 Collaboration) CERN/DRDC/97-40, LCB Status Report/RD44, 10 June 1997
- A.V. Bagulya, V.M. Grishin, A.P. Kostin et al., On fluctuations of signals produced by relativistic charged particles in diamond detectors, Nucl. Instr and Meth. A374 (1996) 278
- M.R. Bishai, V.M. Grishin, I. Shipsey et al., Performance of micro-strip gas chamber passivated by thin semi-conducting glass and plastic films, Nucl. Instr and Meth. A365 (1996) 54
- V.M. Grishin, A.P. Kostin, S.K. Kotelnikov et al., Ionisation fluctuations in very thin

absorbers, Nucl. Instr and Meth. A352 (1995) 659

- GEANT-4 : an Object-Oriented toolkit for simulation in high energy physics (RD44 Collaboration) CERN/DRDC/94-29 and CERN/LHCC/95-70
- Development of micro-strip gas chambers for radiation detection and tracking at high rates (RD28 Collaboration) CERN/DRDC/94-45, Jan 1995, 54 p.
- V.M. Grishin, S.K. Kotelnikov, The influence of transport processes on  $dE/dx$ -fluctuations, Nucl. Instr. and Meth., A317 (1992) 601
- V.K. Ermilova, V.M. Grishin, S.K. Kotelnikov, Ionisation energy loss in very thin absorbers, Nucl.Instr. and Meth., A309 (1991) 476
- V.K. Ermilova, V.M. Grishin, S.K. Kotelnikov, Fast particle identification based on relativistic increase of the threshold efficiency in multi-layer proportional detectors, Nucl. Instr. and Meth., A307 (1991) 273
- V.M. Grishin, G.I. Merzon, A simple method for realistic estimation of the most probable energy loss in thin gas layers, Nucl.Instr. and Meth., A274 (1989) 551
- V.A. Asoskov, V.K. Ermilova, V.M. Grishin et al., Ionisation effects produced by relativistic charged particle in practical detectors, Ann. Report of Lebedev Institute, 140 (1982) 1-92 (in Russian)
- V.K. Ermilova, V.M. Grishin, L.P. Kotenko et al., Angular and energy distributions of X-ray transition radiation, Ann. Report of Lebedev Institute, 140 (1982) 191-202 (in Russian)
- V.A. Asoskov, V.V. Blazhenkov, V.M. Grishin et al., Relativistic rise of primary specific ionisation in noble gases, Sov.Phys. JETP, 49 (1979) 646
- V.A. Asoskov, V.V. Blazhenkov, V.M. Grishin et al., Primary specific ionisation produced by relativistic electrons in noble gases, Sov.Phys. JETP, 46 (1977) 75