

Curriculum Vitae

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Research Interests Theory and simulations of high energy particle penetration through crystals and accompanying polarization effects, astrophysics, radiophysics

Education

Dr. Sci. Institute of Physics, Belorussian Academy of Science, Minsk, Republic of Belarus, 1993,
Ph.D. Belorussian State University, Minsk, Republic of Belarus, 1984.
M.S. Physics Department, Belarus State University, Minsk, Republic of Belarus, 1980.

Strengths

- Is able to predict new physical phenomena, develop their theory, conduct both their simulations and comparison with experiment.
- Knowledge of particle physics, radiation, nuclear physics and nuclear reactor physics, accelerator physics, free electron laser physics, astrophysics and cosmology, the field theory, mathematics, and Monte Carlo methods.

Career History and Experience

1995-present Professor

Nuclear Physics department of Belarusian State University

- Courses in nuclear physics, astrophysics and nuclear reactor physics
- Supervision of undergraduate and Ph. D. students in nuclear astrophysics, radiophysics and particle interaction with matter.

1993-present Head of Laboratory

Laboratory of Nuclear Optics and Cosmomicrophysics physics of Research Institute for Nuclear Problems of Belarusian State University, Minsk, Belarus

- High energy particle interaction with crystals, electromagnetic waves and matter
- Radiophysics, in particular vircator simulations
- Astrophysics physics, primordial black hole problem, extra dimensions
- Development of cumulative magnetic generator
- Lectures in astrophysics, nuclear physics and nuclear reactor physics

1989-1993 Leading Researcher

Research Institute for Nuclear Problems of Belarusian State University, Minsk, Belarus

- High energy particle interaction with electromagnetic waves, matter and crystals

- Development of methods of laser acceleration
- Works in monitoring of nuclear weapons
- Lectures in nuclear physics

1986-1989 Senior Researcher
Research Institute for Nuclear Problems of Belarussian State University,
Minsk, Belarus

- Development of free electron laser
- High energy particle interaction with matter
- Development of sources of x-ray radiation
- Lectures in free electron laser and accelerator physics

1984-1986 Assistant Researcher
Nuclear Physics Department of Belorussian State University

- High energy particle interaction with matter and crystals
- Lectures in nuclear physics

1980-1984 Post-graduate student, Nuclear Physics department, Belorussian State University, Minsk, Republic of Belarus, USSR.
Supervisor Prof. Vladimir.G. Baryshevskii,

Principal achievements

- Prediction of synchrotron-like electron-positron pair production process by high-energy gamma quanta in crystals.
- Prediction of synchrotron-like crystal dichromaticism and birefringence in hard gamma region.
- Prediction of polarized electron-positron pair production by high-energy gamma-quanta in crystals.
- Interpretation of the CERN experiment on electron radiation in thin germanium crystal through the radiative cooling effect (Belkacem peak nature explanation).
- Prediction of the Landau-Pomeranchuk effect suppression by a strong field.
- Prediction of the electron spin rotation in a circularly polarized electromagnetic wave induced by the electron spin polarizability (electron gyration).
- Prediction of circular polarization of radiation emitted by channeled positrons moving at a small angle with respect to a crystal axis in a bent crystal.
- Prediction of the drastic accretion mass growth of black holes in relativistic plasma in the presence of extra space dimensions.
- Prediction of the effect of charged particle multiple reflection by crystal planes of one bent crystal.
- Prediction of the possibility to increase the probability of positively charged particle capture into the channeling regime by a crystal cut.

Scientific publications in journals, proceedings of International Conferences and research reports:

120+ in English and Russian.

Awards

Belarus Komsomol Prize Laureate in science and technology of 1984.

Belarus State Prize Laureate in science and technology of 2002.

References

1. Prof. V.G. Baryshevskii, Head of Research Institute for Nuclear Problems of Belarusian State University, Minsk, Belarus, Phone: (37517) 200-8481 E-mail: bar@inp.minsk.by,
v_baryshevsky@yahoo.com
2. Prof. I.D. Feranchuk, Head of Theoretical Physics Chair of Belarusian State University, Minsk, Belarus, Phone: (37517) 209-5508 E-mail: fer@open.by
3. Dr. V.A. Maishev, Beam Division of the Institute of High Energy Physics (IHEP), Protvino, Russian Federation, E-mail: maishev@ihep.ru