

Andrii NIKOLAIKO

Curriculum Vitae

Current Position

Senior scientific researcher,
Associated professor,
Lepton Physics Department,
Institute for Nuclear Research, Prospect Nauky 47, MSP 03680 Kyiv, Ukraine
Phone: +380 (44) 525-1111, 525-2210
Fax: +380 (44) 525-4463
Mob : +380 (67) 965-4920
E-mail: nikolaiko@kinr.kiev.ua; nikl@i.kiev.ua
<http://lpd.kinr.kiev.ua/nikolaiko>

Personal information

Name: Andrii NIKOLAIKO
Date and place of birth: June 18, 1950; Poltava's region, Ukraine
Nationality: Ukraine
Citizenship: Ukraine
Marital status: married
Children: 3 daughters, 1 grandson
Language skills: Ukrainian (native) and Russian, English (good), Polish (sufficiently good).

Education

Kiev State University, Physics Department: September 1967 — June 1976.
Diploma: M.S. in experimental nuclear physics.

Academic degrees

Dissertation: "Results of the Research of Double Beta Decay of ^{96}Zr , ^{100}Mo , ^{76}Ge ".
Advisor: Ph.D. Yuri G. Zdesenko.
Joint Institute for Nuclear Research, Dubna, Russia, February 1986.
Diploma: Kandydat nauk (equivalent to Ph.D. in Physics and Mathematics) in Physics of Atomic Nuclei and Elementary Particles. Institute for Nuclear Research, Kyiv, Ukraine, July 1986.

Academic rank

2000: Senior scientific researcher (equivalent to Associate professor)

Positions

04.1976 – 02.1980	Experimental Entertainment at Institute for Geochemistry and Physics of Minerals, Kiev, Ukraine	senior technician, engineer, senior engineer
02.1980 – 04.1986	Special Construction-Technological Bureau at Institute for Nuclear Researches, Kiev, Ukraine	leading engineer, leading constructor, head of sector
04.1986 — till now	Institute for Nuclear Research, Lepton Physics Department, Kiev, Ukraine	senior scientific researcher

Membership

2007 – till now: Member of the Scientific Council of the Institute for Nuclear Research

Professional experience

- Development of new applied scientific direction – low background scintillation spectrometry.
- Construction of the Solotvina Underground Laboratory,
- Development, creation and maintaining of low background set-ups (ground and underground).
- The investigation of properties (light output, pulse-shape, temperature dependence, radiopurity etc.) and development of new crystal scintillators (CdWO_4 , CaWO_4 , ZnWO_4 , PbWO_4 , PbMoO_4 , CaMoO_4 , $\text{Li}_2\text{Zn}_2(\text{MoO}_4)_3$ etc.) that can be used in low-counting experiments in nuclear and particle physics.
- Development of $^{116}\text{CdWO}_4$ scintillators (enriched and large volume).
- The search for different modes of 2β -decay (double electron and double positron decay, electron-positron conversion, double K-capture) of wide range of isotopes.
- The measurements of shape of 4-forbidden β -decay of ^{113}Cd .

Research Interests

Search for double beta decay, dark matter and other rare nuclei processes.
Development of low radioactive technique, low background scintillation detectors.

International collaboration

Participation in the international collaborations:

- search for 2β processes in ^{106}Cd (1995 – Max-Planck Institut für Kernphysik, Heidelberg, Germany);
- search for 2β decay of ^{100}Mo (2007-2009 – Seoul National University, Seoul, Yangyang Korea Republic);
- member of the EURECA collaboration from 2007.

Main publications (1979-2009, total amount – 110).

1. Zdesenko Yu.G., Kuts V.N., Mitsik I.A., Nikolaiko A.S.
Low-background setup for studying double beta-decay.
Instr. Exp. R. 5(1979)1239-1244.
2. Zdesenko Yu.G., Mitsik I.A., Nikolaiko A.S., Kuts V.N.
Study of the double β -decay of ^{130}Te .
Sov. J. Nucl. P. 32(1980)312-317.
3. Zdesenko Yu.G., Kuts V.N., Mitsik I.A., Nikolaiko A.S.
Units and devices enhancing the reliability and simplifying the operation of apparatus for studying double beta-decay.
Instr. Exp. R. 25(1982)1124-1128.
4. Zdesenko Yu.G., Kuts V.N., Mitsik I.A., Nikolaiko A.S.
The study of 2β -decay of ^{100}Mo .
Proc. Int. Conf. Neutrino'82: Hungary, 1982. - Budapest. - 1982. - Vol.1. - P.209-215.
5. Yu.G.Zdesenko, A.B.Kostezh, B.N.Kropivnyansky, V.N.Kuts, A.S.Nikolaiko, V.I.Tretyak.
Preliminary Results from Study of Neutrinoless Double beta-Decay of ^{76}Ge .
Bull. Acad. Sci. USSR, Phys.Ser. 49(1985)27.
6. Zdesenko Yu.G., Nikolaiko A.S., Ryzhikov V.D., Silin V.I.
Spectrometric characteristics of cadmium sulfide-based scintillators.
Instr. Exp. R. 28(1985)587-589.
7. Zdesenko Yu.G., Kropivnyanskii B.N., Kuts V.N., Nikolaiko A.S., Tretyak V.I.
Results of an underground experimental search for neutrinoless double β decay of ^{76}Ge .
Sov. J. Nucl. Phys. 43(1986)678-684.
8. Bondarenko O.A., Zdesenko Yu.G., Kostezh A.B., Kropivnyansky B.N., Nikolaiko A.S.

Stabilized scintillation detector.

Meas. Tech. R. 29(1986)676-679.

9. Zdesenko Yu.G., Kostezh A.B., Kropivnyansky B.N., Kuts V.N., Mitsik I.A., Nikolaiko A.S.
Low-background semiconductor spectrometer.
Meas. Tech. R. 29(1986)890-893.
10. Danevich F.A., Zdesenko Yu.G., Nikolaiko A.S., Tretyak V.I.
Search for 2β decay of ^{116}Cd with the help of a $^{116}\text{CdWO}_4$ scintillator.
JETP Lett. 49(1989)476-479.
11. Danevich F.A., Zdesenko Yu.G., Nikolaiko A.S., Burachas S.F., Nagornaya L.L., Ryzhikov V.D., Batenchuk M.M.
 CdWO_4 , ZnSe and ZnWO_4 scintillators in studies of 2β -processes.
Instr. Exp. R. 32(1989)1059-1064.
12. Vasilenko V.V., Danevich F.A., Zhuk N.A., Zdesenko Yu.G., Kropivnyansky B.N., Kuts V.N., Nikolaiko A.S., Tretyak V.I.
Low-background apparatus for study of rare processes of atomic-nucleus decay.
Instr. Exp. R. 33(1990)46-52.
13. Alessandrello, C. Brofferio, D.V. Camin, O. Cremonesi, F.A. Danevich, P. de Marcillac, E. Fiorini, A. Giuliani, V.N. Kouts, A.S. Nikolayko, M. Pavan, G. Pessina, E. Previtali, C. Vignoli, L. Zanotti, Yu.G. Zdesenko.
Bolometric measurement of the beta spectrum of ^{113}Cd .
Nucl. Phys. B (Proc. Suppl.) 35(1994)394-396.
14. F.A. Danevich, A. Sh. Georgadze, V.V. Kobychiev, B.N. Kropivnyansky, V.N. Kuts, A.S. Nikolaiko, V.I. Tretyak, Yu. Zdesenko.
The research of 2β decay of ^{116}Cd with enriched $^{116}\text{CdWO}_4$ crystal scintillators.
Phys. Lett. B 344(1995)72-78.
15. Sh. Georgadze, F.A. Danevich, Yu.G. Zdesenko, V.V. Kobychiev, B.N. Kropivnyanskii, V.N. Kuts, A.S. Nikolaiko, V.I. Tretyak.
Study of ^{116}Cd double beta decay with $^{116}\text{CdWO}_4$ scintillators.
Phys. At. Nucl. 58(1995)1093-1102.
16. Sh. Georgadze, F.A. Danevich, Yu.G. Zdesenko, V.V. Kobychiev, B.N. Kropivnyanskii, V.N. Kuts, V.V. Muzalevskii, A.S. Nikolaiko, O.A. Ponkratenko, V.I. Tretyak.
Search for α decay of naturally occurring tungsten isotopes.
JETP Lett. 61(1995)882-886.
17. S.F. Burachas, V.G. Bondar, V.P. Martynov, K.A. Katrunov, O.V. Zelenskaya, Yu.G. Zdesenko, A.S. Nikolaiko.
Existence of a predominant direction of light emission from oxide crystalline scintillators.
Atomic Energy 79(1995)871-873.
18. S. Ph. Burachas, F.A. Danevich, A. Sh. Georgadze, H.V. Klapdor-Kleingrothaus, V.V. Kobychiev, B.N. Kropivnyansky, V.N. Kuts, A. Muller, V.V. Muzalevsky, A.S. Nikolaiko, O.A. Ponkratenko, V.D. Ryzhikov, A.S. Sai, I.M. Solsky, V.I. Tretyak, Yu.G. Zdesenko.
Large volume CdWO_4 crystal scintillators.
Nucl. Instrum. and Methods in Phys. Research A 369(1996)164-168.
19. F.A. Danevich, A. Sh. Georgadze, V.V. Kobychiev, B.N. Kropivnyansky, V.N. Kuts, A.S. Nikolayko, O.A. Ponkratenko, V.I. Tretyak, Yu.G. Zdesenko.
Beta decay of ^{113}Cd .
Phys. At. Nucl. 59(1996)1-5.
20. F.A. Danevich, A. Sh. Georgadze, V.V. Kobychiev, B.N. Kropivnyansky, V.N. Kuts, A.S. Nikolaiko, V.I. Tretyak, Yu.G. Zdesenko.
New results of ^{116}Cd double beta decay search.
Nucl. Phys. B (Proc. Suppl.) 48(1996)232-234.
21. F.A. Danevich, A. Sh. Georgadze, V.V. Kobychiev, B.N. Kropivnyansky, V.N. Kuts, V.V. Muzalevsky, A.S. Nikolaiko, O.A. Ponkratenko, A.G. Prokopets, V.I. Tretyak, Yu.G. Zdesenko.

Quest for neutrinoless double beta decay of ^{160}Gd .

Nucl. Phys. B (Proc. Suppl.) 48(1996)235-237.

22. Sh.Georgadze, F.A.Danevich, Yu.G.Zdesenko, V.V.Kobychev, B.N.Kropivyanskii, V.N.Kuts, V.V.Muzalevskii, A.S.Nikolaiko, O.A.Ponkratenko, V.I.Tretyak.
Evaluation of activities of impurity radionuclides in cadmium tungstate crystals.
Instr. and Exp. Technique 39(1996)191-198.
23. Sh.Georgadze, F.A.Danevich, Yu.G.Zdesenko, V.N.Kuts, V.V.Kobychev, B.N.Kropivyanskii, V.V.Muzalevskii, A.S.Nikolaiko, O.A.Ponkratenko, V.I.Tretyak, S.F.Burachas, V.D.Ryzhikov, A.S.Sai, I.M.Sol'skii.
Cadmium tungstate scintillators of large volume.
Instr. and Exp. Technique 39(1996)359-363.
24. Yu.G.Zdesenko, B.N.Kropivyanskii, V.N.Kuts, A.S.Nikolaiko, V.T.Gabrielyan, S.V.Akimov.
Lead molybdate as a low-temperature scintillator in the experimental search for the neutrinoless double beta-decay of ^{100}Mo .
Instr. and Exp. Technique 39(1996)364-368.
25. F.A.Danevich, A.Sh.Georgadze, J.Hellmig, M.Hirsch, H.V.Klapdor-Kleingrothaus, V.V.Kobychev, B.N.Kropivyansky, V.N.Kuts, A.Muller, A.S.Nikolaiko, F.Petry, O.A.Ponkratenko, H.Strecker, V.I.Tretyak, M.Vollinger, Yu.Zdesenko.
Investigation of $\beta^+\beta^+$ and β^+/EC decay of ^{106}Cd .
Z. Physik A 355(1996)433-437.
26. A.Sh.Georgadze, F.A.Danevich, Yu.G.Zdesenko, V.V.Kobychev, B.N.Kropivyansky, V.N.Kuts, V.V.Muzalevsky, A.S.Nikolaiko, O.A.Ponkratenko, A.G.Prokopets, V.I.Tretyak.
Double beta Decay of ^{116}Cd and ^{160}Gd .
Bull. Rus. Acad. Sci. Phys. 61(1997)600
27. Sh.Georgadze, F.A.Danevich, Yu.G.Zdesenko, V.V.Kobychev, B.N.Kropivyansky, V.N.Kuts, V.V.Muzalevsky, A.S.Nikolaiko, O.A.Ponkratenko, V.I.Tretyak.
Investigation of Rare Alpha and Beta Decays by Means of Cadmium and Zinc Tungstate Crystals.
Bull. Rus. Acad. Sci. Phys. 61(1997)1719
28. F.A.Danevich, A.Sh.Georgadze, V.V.Kobychev, B.N.Kropivyansky, A.S.Nikolaiko, O.A.Ponkratenko, V.I.Tretyak, Yu.Zdesenko.
Limits on Majoron modes of ^{116}Cd neutrinoless 2β decay.
Nucl. Phys. A 643(1998)317-328.
29. F.A.Danevich, A.Sh.Georgadze, V.V.Kobychev, B.N.Kropivyansky, A.S.Nikolaiko, O.A.Ponkratenko, V.I.Tretyak and Yu.G.Zdesenko.
Status of the INR experiment on 2β decay of ^{116}Cd .
Nucl. Phys. B (Proc. Suppl.) 70(1999)246-248.
30. F.A.Danevich, A.Sh.Georgadze, V.V.Kobychev, B.N.Kropivyansky, A.S.Nikolaiko, O.A.Ponkratenko, V.I.Tretyak, S.Yu.Zdesenko, Yu.G.Zdesenko, P.G.Bizzeti, T.F.Fazzini, P.R.Maurenzig.
New results of ^{116}Cd double β decay study with $^{116}\text{CdWO}_4$ scintillators.
Phys. Rev. C 62(2000)045501, 9 p.
31. G.Bellini, B.Caccianiga, M.Chen, F.A.Danevich, M.G.Giammarchi, V.V.Kobychev, B.N.Kropivyansky, E.Meroni, L.Miramonti, A.S.Nikolayko, L.Oberauer, O.A.Ponkratenko, V.I.Tretyak, S.Yu.Zdesenko, Yu.G.Zdesenko.
High sensitivity quest for Majorana neutrino mass with the BOREXINO counting test facility.
Phys. Lett. B 493(2000)216-228.
32. F.A.Danevich, V.V.Kobychev, B.N.Kropivyansky, A.S.Nikolaiko, O.A.Ponkratenko, V.I.Tretyak, Yu.G.Zdesenko, P.G.Bizzeti, T.F.Fazzini, P.R.Maurenzig.
New phase of the ^{116}Cd 2β -decay experiment with $^{116}\text{CdWO}_4$ scintillators.
Phys. Atom. Nuclei 63(2000)1229-1237.

33. G.Bellini, B.Caccianiga, M.Chen, F.A.Danevich, M.G.Giammarchi, V.V.Kobychev, B.N.Kropivyansky, E.Meroni, L.Miramonti, A.S.Nikolayko, L.Oberauer, O.A.Ponkratenko, V.I.Tretyak, S.Yu.Zdesenko, Yu.G.Zdesenko.
High sensitivity 2β decay study of ^{116}Cd and ^{100}Mo with the BOREXINO counting test facility (CAMEO project).
Eur. Phys. J. C 19(2001)43-55.
34. P.G.Bizzeti, F.A.Danevich, T.F.Fazzini, A.Sh.Georgadze, V.V.Kobychev, B.N.Kropivyansky, P.R.Maurenzig, A.S.Nikolaiko, O.A.Ponkratenko, V.I.Tretyak, S.Yu.Zdesenko, Yu.G.Zdesenko.
Status of ^{116}Cd double β decay study with $^{116}\text{CdWO}_4$ scintillators.
Part. Nucl. Lett. (Письма в ЭЧАЯ) 6(2001)7-17.
35. S.Ph.Burachas, F.A.Danevich, A.Sh.Georgadze, H.V.Klapdor-Kleingrothaus, V.V.Kobychev, B.N.Kropivyansky, V.N.Kuts, A.Muller, V.V.Muzalevsky, A.S.Nikolaiko, O.A.Ponkratenko, V.D.Ryzhikov, A.S.Sai, I.M.Solsky, V.I.Tretyak, Yu.G.Zdesenko.
Large volume CdWO_4 crystal scintillators.
Nucl. Instrum. and Methods in Phys. Research A 369(1996)164-168. Reprinted in:
H.V.Klapdor-Kleingrothaus, "Sixty years of double beta decay", World Sci., Singapore, 2001, p.1025-1029.
36. P.G.Bizzeti, A.Sh.Georgadze, F.A.Danevich, S.Yu.Zdesenko, Yu.G.Zdesenko, V.V.Kobychev, B.N.Kropivyansky, P.R.Maurenzig, S.S.Nagorny, A.S.Nikolaiko, O.A.Ponkratenko, V.I.Tretyak, T.F.Fazzini.
 ^{180}W Alpha-Decay.
Bull. Rus. Acad. Sci. Phys. 66(2002)689
37. P.G.Bizzeti, F.A.Danevich, T.F.Fazzini, A.Sh.Georgadze, V.V.Kobychev, P.R.Maurenzig, S.S.Nagorny, A.S.Nikolaiko, O.A.Ponkratenko, V.I.Tretyak, S.Yu.Zdesenko, Yu.G.Zdesenko.
New results of ^{116}Cd $\beta\beta$ decay experiment.
Nucl. Phys. B (Proc. Suppl.) 110(2002)389-391.
38. F.A.Danevich, A.Sh.Georgadze, V.V.Kobychev, S.S.Nagorny, A.S.Nikolaiko, O.A.Ponkratenko, V.I.Tretyak, S.Yu.Zdesenko, Yu.G.Zdesenko, P.G.Bizzeti, T.F.Fazzini, P.R.Maurenzig.
 α activity of natural tungsten isotopes.
Phys. Rev. C 67(2003)014310, 8 p.
39. F.A.Danevich, A.Sh.Georgadze, V.V.Kobychev, B.N.Kropivyansky, A.S.Nikolaiko, O.A.Ponkratenko, V.I.Tretyak, S.Yu.Zdesenko, Yu.G.Zdesenko, P.G.Bizzeti, T.F.Fazzini, P.R.Maurenzig.
Search for 2β decay of cadmium and tungsten isotopes: Final results of the Solotvina experiment.
Phys. Rev. C 68(2003)035501, 12 p.
40. F.A.Danevich, A.Sh.Georgadze, V.V.Kobychev, A.S.Nikolaiko, O.A.Ponkratenko, V.I.Tretyak, S.Yu.Zdesenko, Yu.G.Zdesenko, P.G.Bizzeti, T.F.Fazzini, P.R.Maurenzig.
Two-neutrino 2β decay of ^{116}Cd and new half-life limits on 2β decay of ^{180}W and ^{186}W .
Nucl. Phys. A 717(2003)129-145.
41. P.G.Bizzeti, A.Sh.Georgadze, F.A.Danevich, S.Yu.Zdesenko, Yu.G.Zdesenko, V.V.Kobychev, P.R.Maurenzig, S.S.Nagorny, A.S.Nikolaiko, O.A.Ponkratenko, V.I.Tretyak, T.F.Fazzini
Double beta-decay of ^{116}Cd nucleus.
Bull. Rus. Acad. Sci. Phys. 67(2003)694-699.
42. P.G.Bizzeti, A.Sh.Georgadze, F.A.Danevich, S.Yu.Zdesenko, Yu.G.Zdesenko, V.V.Kobychev, P.R.Maurenzig, S.S.Nagorny, A.S.Nikolaiko, O.A.Ponkratenko, V.I.Tretyak, T.F.Fazzini.

α -decay of natural tungsten isotopes.

Bull. Rus. Acad. Sci. Phys. 67(2003)700-.

43. F.A.Danevich, P.G.Bizzeti, T.F.Fazzini, A.Sh.Georgadze, V.V.Kobychev, B.N.Kropivyansky, P.R.Maurenzig, A.S.Nikolaiko, V.I.Tretyak, S.Yu.Zdesenko, Yu.G.Zdesenko.
Double β decay of ^{116}Cd . Final results of the Solotvina experiment and CAMEO project.
Nucl. Phys. B (Proc. Suppl.) 138(2005)230-232.
44. F.A.Danevich, A.Sh.Georgadze, V.V.Kobychev, B.N.Kropivyansky, S.S.Nagorny, A.S.Nikolaiko, D.V.Poda, V.I.Tretyak, I.M.Vyshnevskiy, S.S.Yurchenko, B.V.Grinyov, L.L.Nagornaya, E.N.Pirogov, V.D.Ryzhikov, V.B.Brudanin, Ts.Vylov, A.Fedorov, M.Korzhik, A.Lobko, O.Missevitch.
Application of PbWO_4 crystal scintillators in experiment to search for 2β decay of ^{116}Cd .
Nucl. Instrum. Meth. Phys. Res. A 556(2006)259-265.
45. L.Bardelli, M.Bini, P.G.Bizzeti, L.Carraresi, F.A.Danevich, T.F.Fazzini, B.V.Grinyov, N.V.Ivannikova, V.V.Kobychev, B.N.Kropivyansky, P.R.Maurenzig, L.L.Nagornaya, S.S.Nagorny, A.S.Nikolaiko, A.A.Pavlyuk, D.V.Poda, I.M.Solsky, M.V.Sopinsky, Yu.G.Stenin, F.Taccetti, V.I.Tretyak, Ya.V.Vasiliev, S.S.Yurchenko.
Further study of CdWO_4 crystal scintillators as detectors for high sensitivity 2β experiments: Scintillation properties and pulse-shape discrimination.
Nucl. Instrum. Meth. Phys. Res. A 569(2006)743-753.
46. F.A.Danevich, S.K.Kim, H.J.Kim, A.B.Kostezh, V.V.Kobychev, B.N.Kropivyansky, M.Laubenstein, V.M.Mokina, S.S.Nagorny, A.S.Nikolaiko, S.Nisi, D.V.Poda, V.I.Tretyak, S.A.Voronov.
Archaeological lead findings in the Ukraine.
AIP Conf. Proc. 897(2007)125-130.
47. A.N.Annenkov, O.A.Buzanov, F.A.Danevich, A.Sh. Georgadze, S.K. Kim, H.J.Kim, Y.D.Kim, V.V.Kobychev, V.N.Kornoukhov, M.Korzhik, J.I.Lee, O.Missevitch, V.M.Mokina, S.S.Nagorny, A.S.Nikolaiko, D.V.Poda, R.B.Podvivanuk, D.J.Sedlak, O.G. Shkulkova, J.H.So, I.M. Solsky, V.I. Tretyak, S.S. Yurchenko.
Development of CaMoO_4 crystal scintillators for double beta decay experiment with ^{100}Mo ,
Nucl. Instrum. Meth. Phys. Res. A - 2008. - 584, issues 2-3 - pp.334-345.

February, 2009