

Curriculum Vitae

Denys V. Poda

Current Position

Post-doctoral fellow

[DAMA group](#)

[Laboratori Nazionali del Gran Sasso](#) — Istituto Nazionale di Fisica Nucleare

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Joint Affiliation

Scientific Researcher

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Personal information

Name: PODA Denys Valentynovych
Date of birth: November 16, 1982
Place of birth: Pyryatyn, Poltavaska region, Ukraine
Citizenship: Ukraine
Marital status: Married

Education

Secondary education: Pyryatyn's Lyceum (Pyryatyn, Poltavskaya region, Ukraine)
September 1989 – June 1999

Higher education: Taras Shevchenko National University of Kyiv, The Faculty of Physics,
Nuclear Physics Department (Kyiv, Ukraine)
September 1999 – June 2004
Fields of study: general physics; nuclear, particle and high energy physics

Postgraduate studies: Institute for Nuclear Research of the National Academy of Sciences of
Ukraine, Lepton Physics Department (Kyiv, Ukraine)
November 2004 – November 2007
Fields of study: experimental nuclear, particle and astroparticle physics

Academic degrees

- M.Sc. with distinction (nuclear and particle physics), Taras Shevchenko Kyiv National University, Kyiv, 2004. Advisor: Ph.D. F.A. Danevich. (Thesis title: "Optimization of detector based on cadmium tungstate crystal scintillator")

- Ph.D. (nuclear, particle and high energy physics), Institute for Nuclear Research, Kyiv, 2009. Advisor: Dr.Sci. F.A. Danevich. (Thesis title: “Double beta decay of $^{64, 70}\text{Zn}$ and $^{180, 186}\text{W}$ isotopes”)

Professional employment

- 12.2002 – 06.2004: Technician, Lepton Physics Department of Institute for Nuclear Research of the National Academy of Sciences of Ukraine (LPD INR NASU), Kyiv, Ukraine
- 07.2004 – 10.2007: Engineer, LPD INR NASU, Kyiv, Ukraine
- 11.2007 – 02.2008: Senior Engineer, LPD INR NASU, Kyiv, Ukraine
- 03.2008 – 10.2009: Junior Scientific Researcher, LPD INR NASU, Kyiv, Ukraine
- 11.2009 – present: Scientific Researcher, LPD INR NASU, Kyiv, Ukraine

International scientific work

- 2006 – 2009: I worked one month per year in Laboratori Nazionali del Gran Sasso of Istituto Nazionale di Fisica Nucleare (Assergi, Italy) and Dipartimento di Fisica Universita di Roma “Tor Vergata” (Rome, Italy) within DAMA Collaboration (full time — 4 months)
- 05.2010 – present: Post-doctoral fellow at the Laboratori Nazionali del Gran Sasso (INFN, Italy).

Membership

- 2007 – present: Member of the Council of Young Scientists of the Institute for Nuclear Research of the NASU

Professional awards

- 2010: Annual Prize of President of Ukraine for young scientist (together with S.S. Nagorny, O.G. Polischuk and S.S. Yurchenko) for the cycle of experimental studies “Rare nuclear and subnuclear processes”.

Research interests and expertise

- Non-accelerator nuclear and particle physics (search for double beta decay; investigation rare alpha and beta decays).
- Astroparticle physics (development of detectors to search for dark matter).
- Development of low-radioactive technique and low-background scintillation detectors.
- Scintillation counting, HP Ge γ spectrometry, and data analysis.
- I have contributed so far to the activities of the group headed by Dr.Sci. F.A. Danevich at the Institute for Nuclear Research of the NASU (Kyiv, Ukraine) in various collaborations and in the Solotvina Underground Laboratory. In particular, since 2005 I have been participating to the collaboration efforts to realize various kinds of highly radiopure scintillators and small scale experiments in the DAMA/R&D set-up and in the Laboratory of Ge detectors at the Gran Sasso National Laboratory of the INFN. Many achievements have already been reached. At present, I am taking a part in the experiment with radiopure enriched $^{116}\text{CdWO}_4$ scintillators to search for $0\nu 2\beta$ decay of ^{116}Cd

I participated in the following collaborations:

- DAMA (R&D and small experiments, since 2005);
- SuperNEMO (2006–2009);
- EURECA (since 2007);
- AMoRE (since 2009).

Main achievements

- Investigation of two neutrino double beta decay of ^{100}Mo to the first excited 0^+_1 level of ^{100}Ru and determination its half-life with a better accuracy than in other measurements.
- The new limits on half-life for double beta processes in ^{64}Zn , ^{70}Zn , ^{106}Cd , ^{108}Cd , ^{114}Cd , ^{180}W , and ^{186}W isotopes.
- Investigation of four-fold forbidden beta decay of ^{113}Cd and determination its half-life with a better accuracy than in other measurements.
- Development and study of many inorganic crystal scintillators (tungstates and molybdates) as detectors to search for double beta decay and dark matter. Development of isotopically enriched $^{106}\text{CdWO}_4$, $^{116}\text{CdWO}_4$, and $\text{Ca}^{100}\text{MoO}_4$ crystal scintillators to search for double beta processes.

Reports at the conferences

- Annual Conference of Institute for Nuclear Research [in Ukrainian], Kyiv, Ukraine — *January 2004, 2005, 2006, 2008, 2009, 2010.*
- Annual Conference of Students and Postgraduate Students of Taras Shevchenko National University of Kyiv [in Ukrainian], Kyiv, Ukraine — *May 2004.*
- International School of Young Scientists on Nuclear Physics and Energetic [in Ukrainian], Alushta, Ukraine — *June 2005, 2007.*
- SuperNEMO Meeting, Kyiv, Ukraine — *June 15–16, 2006.*
- School-workshop of Young Scientists “Scintillation Processes and Materials for Registration of Ionization Radiation” [in Russian], Kharkiv, Ukraine — *September 2006, 2007, 2008, 2009.*
- International Conference of Young Scientists and Post-graduates [in Ukrainian], Uzhgorod, Ukraine — *May 14–19, 2007.*
- SuperNEMO Calorimeter Meeting, Kyiv, Ukraine — *October 11–12, 2007.*
- The 2nd International Conference “Current Problems in Nuclear Physics and Atomic Energy”, Kyiv, Ukraine — *June 09–15, 2008.*
- International Workshop on Radiopure Scintillators for EURECA (“RPSCINT 2008” and “RPSCINT 2009”), Kyiv, Ukraine — *September 09–10, 2008, September 22–23, 2009.*
- International Conference “Engineering of Scintillation Materials and Radiation Technologies” [in Russian], Kharkiv, Ukraine — *November 16–21, 2008, November 14–19, 2010.*
- International Scientific Workshop “Oxide Materials for Electronic Engineering — fabrication, properties and application (OMEE-2009)”, Lviv, Ukraine — *June 22–26, 2009.*
- Scientific and Technical Conference for Young Scientists “Luminescent Processes in Condensed State of Matter (LUMCOS 2009)” [in Russian], Kharkiv, Ukraine — *November 17–20, 2009.*

Invited reports

- Joint Nuclear Physics Seminar [in Ukrainian], INR NASU, Kyiv, Ukraine — *October 09, 2008.*
- Department of Nuclear Physics and Power Engineering at the National Academy of Sciences of Ukraine [in Ukrainian], NASU, Kyiv, Ukraine — *November 11, 2009.*
- Presidium of the National Academy of Sciences of Ukraine [in Ukrainian], NASU, Kyiv, Ukraine — *December 28, 2009.*
- Nuclear Physics Seminar [in Ukrainian], INR NASU, Kyiv, Ukraine — *January 21, 2010.*

- The 2nd International Conference “Engineering of Scintillation Materials and Radiation Technologies” [in Russian], Kharkiv, Ukraine — November 16, 2010.

Main scientific publications (2005–2012)

1. F.A. Danevich et al., *ZnWO₄ crystals as detectors for 2β decay and dark matter experiments.* Nucl. Instr. Meth. A 544 (2005) 553–564.
2. F.A. Danevich et al., *Application of PbWO₄ crystal scintillators in experiment to search for 2β decay of ¹¹⁶Cd.* Nucl. Instr. Meth. A 556 (2006) 259–265.
3. L. Bardelli et al., *Further study of CdWO₄ crystal scintillators as detectors for high sensitivity 2β experiments: Scintillation properties and pulse-shape discrimination.* Nucl. Instr. Meth. A 569 (2006) 743.
4. P. Belli et al., *Investigation of β decay of ¹¹³Cd.* Phys. Rev. C 76 (2007) 064603, 10 p.
5. L. Bardelli et al., *Pulse-shape discrimination with PbWO₄ crystal scintillators.* Nucl. Instr. Meth. A 584 (2008) 129–134.
6. A.N. Annenkov et al., *Development of CaMoO₄ crystal scintillators for double beta decay experiment with ¹⁰⁰Mo.* Nucl. Instr. Meth. A 584 (2008) 334–345.
7. P. Belli et al., *Search for 2β processes in ⁶⁴Zn with the help of ZnWO₄ crystal scintillator.* Phys. Lett. B 658 (2008) 193–197.
8. L.L. Nagornaya et al., *Growth of ZnWO₄ crystal scintillators for high sensitivity 2β experiment.* IEEE Trans. Nucl. Sci. 55 (2008) 1469–1472.
9. P. Belli et al., *Search for double-β decay processes in ¹⁰⁸Cd and ¹¹⁴Cd with the help of low-background CdWO₄ crystal scintillator.* Eur. Phys. J. A 36 (2008) 167–170.
10. F.A. Danevich et al., *Ancient Greek lead findings in Ukraine.* Nucl. Instr. Meth. A 603 (2009) 328–332.
11. L.L. Nagornaya et al., *Tungstate and molybdate scintillators to search for dark matter and double beta decay.* IEEE Trans. Nucl. Sci. 56 (2009) 2513–2515.
12. P. Belli et al., *Search for 2β decay of Zinc and Tungsten with the help of low-background ZnWO₄ crystal scintillators.* Nucl. Phys. A 826 (2009) 256–273.
13. P. Belli et al., *Development of enriched ¹⁰⁶CdWO₄ crystal scintillators to search for double β decay processes in ¹⁰⁶Cd.* Nucl. Instr. Meth. A 615 (2010) 301–306.
14. P. Belli et al., *New observation of 2β2ν decay of ¹⁰⁰Mo to the 0⁺₁ level of ¹⁰⁰Ru in the ARMONIA experiment.* Nucl. Phys. A 846 (2010) 143–156.
15. P. Belli et al., *Radioactive contamination of ZnWO₄ crystal scintillators.* Nucl. Instr. Meth. A 626–627 (2010) 31–38.
16. A.S. Barabash et al., *Low background detector with enriched ¹¹⁶CdWO₄ crystal scintillators to search for double β decay of ¹¹⁶Cd.* JINST 6 (2011) P08011, 24 p.
17. P. Belli et al., *Final results of an experiment to search for 2β processes in zinc and tungsten with the help of radiopure ZnWO₄ crystal scintillators.* J. Phys. G: Nucl. Part. Phys. 38 (2011) 115107, 15 p.

18. P. Belli et al., *Search for double- β decay processes in ^{106}Cd with the help of a $^{106}\text{CdWO}_4$ crystal scintillator.*
Phys. Rev. C 85 (2012) 044610, 12 p.

Last updated: April 30, 2012