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CURRICULUM VITAE

Personal information

I was born in Kyiv (Ukraine) on November 26, 1956.
Family status – married, two children: daughter 38 years and son 28 years old.
Citizenship: Ukraine.

Education

- 1964–1974 – secondary school in Kyiv; graduated with excellence (gold medal).
- 1975–1980 – Physical Faculty of the Kyiv State University (Kyiv, Ukraine). Graduated (MSc) in speciality: "Theoretical nuclear physics". Subject of diploma thesis: "Application of the method of hyperspherical functions for ^{8}Be nucleus" (supervisor – G.F. Filippov).
- 1991 – thesis of candidate of physical and mathematical sciences (PhD) on: "Simulation and experimental investigations of double beta processes on Mo, Ge, Hg, Cd and W nuclei" (supervisor – Yu.G. Zdesenko).

Employment and visiting positions

- 1974–1975 – technician in laboratories of physics and chemistry in secondary school.
- 1980–1982 – military service (lieutenant- and senior lieutenant-ingeneur).
- 1982 – up to now – work in the Institute for Nuclear Research of the National Academy of Sciences of Ukraine (Kyiv) as engineer (1982–1986), junior scientific researcher (1986–1991), scientific researcher (1991–1996), senior scientific researcher (1996–2014) and leading scientific researcher (since 2014).
- During 1991–1998 I worked from one to few months per year in Laboratoire de l'Accelerateur Lineaire (Orsay, France) and Institut de Recherches Subatomiques (Strasbourg, France) in framework of the NEMO Collaboration (full time – 2 years).
- 1999 – Senior scientific researcher (equiv. Associate professor).
- During 1999–2022 I periodically worked in Laboratori Nazionali del Gran Sasso (Assergi, Italy) and Istituto Nazionale di Fisica Nucleare, Rome section (INFN, Italy) with the DAMA Collaboration (full time – more than 5 years; from these, 1 year (2002–2003) on position of primo ricercatore II livello in INFN Section of Rome. In years 2014-15 I was associated to the INFN, Rome section (associazione scientifica enti stranieri).

- I was visiting professor at the Seoul National University, Seoul, Republic of Korea in 2008–2009 (6 months); at Rome Tor Vergata University, Italy in 2016–2017 (3 months); and at the University of L'Aquila, Italy in 2022 (3 months).

- 2022 – up to now – assegno di ricerca in Laboratori Nazionali del Gran Sasso (Assergi, Italy).

Field of scientific interests

Search and investigations of rare processes in nuclear and particle physics and effects beyond the Standard Model: double beta decay, rare alpha and beta decays, processes with violation of baryon and lepton numbers, limits on the violation the electric charge, testing the Pauli principle, quenching factors for ions in scintillators, etc.

Publications

I have 305 articles listed in Scopus, with 9106 citations and h-index = 59.

On Inspire dataset 263 works are listed with 8547 citations and h-index = 55 which includes 201 published papers with 8050 citations and h-index = 54 (among those 1 paper with $>$ 250 cites, 15 papers with $>$ 100 cites and 44 papers with $>$ 50 cites).

Editorial work

Since 2015 I am executive secretary in the journal "Nuclear Physics and Atomic Energy" published by INR, Kyiv.

Member of Editorial Board: "Particles" (MDPI, since 2021); "The Scientific World Journal" (Hindawi, 2012–2017).

Reviewer in journals

Applied Radiation and Isotopes, Astroparticle Physics, Colloids and Surfaces A, European Physical Journal C, European Physical Journal Plus, Frontiers in Physics, IEEE Transactions on Nuclear Science, Instruments, International Journal of Modern Physics A, Journal of Industrial and Engineering Chemistry, Journal of Luminescence, Journal of Physics G, Nuclear Instruments and Methods A, Nuclear Physics A, The Scientific World Journal, Universe; Journal of Physical Studies, Nuclear Physics and Atomic Energy, Ukrainian Journal of Physics.

Referee in funding agencies

Sonata (Poland), ANR (France).

Teaching

2007, 2008, 2009 – Taras Shevchenko National University of Kyiv, Ukraine (Astroparticle physics, for students of 4–5 courses).

2012 – Tata Institute for Fundamentsl Researches, Mumbai, India (Monte Carlo generation of events in nuclear decays, for PhD students).

2016 – University "Tor Vergata", Rome, Italy (Experimental investigations in neutrino physics and in searches for rare and/or hypothetical processes in nuclear physics, for PhD students).

2019, 2020 – Institute for Nuclear Research of NASU, Kyiv, Ukraine (Particle physics without accelerators, for PhD students).

PhD students

Oksana Polischuk (defended in 2012)
Nazar Sokur (in process)

Grants

LIA IDEATE France-Ukraine (Development of $ZnMoO_4$ and Li_2MoO_4 scintillating detectors, 2015–2018).

Nat. Ac. of Sci. of Ukraine (Investigations of double beta decay of ^{150}Nd to excited levels of ^{150}Sm, 2018–2019).

Awards

Sinelnikov Prize of the National Academy of Sciences of Ukraine 2006 for series of works "Experimental investigations of rare processes in physics of atomic nuclei and particles".

State Prize of Ukraine in Science and Technology 2016 for the work "Properties of neutrino and weak interactions, search for effects beyond the Standard Model".

Languages

Ukrainian, Russian (native); English (fluently read and spoken); Polish, Slovak, Czech, Belorussian (read).

9.12.2023 V.I. Tretyak

RESEARCH ACTIVITIES

Field of interests in nuclear physics – search for rare and forbidden nuclear processes. Our experimental group (Professor Yu.G. Zdesenko was head of the group in 1980–2004) carried out experiments in the Solotvina Underground Laboratory (salt mines 430 m underground, situated in Ukraine) to search for double beta processes in ^{76}Ge, ^{106,108,114,116}Cd, ^{136,138,142}Ce, ^{160}Gd, ^{180,186}W, ^{196}Hg isotopes, cluster radioactivity of nuclei (with emission of fragments heavier than α particle), decay of electron, transitions of nuclei in superdense state, search for α decays of W isotopes and investigation of 4-th forbidden β decay of ^{113}Cd. Ge(Li), HPGe, NaI, Gd_2SiO_5, $CdWO_4$ detectors were used in these studies. The limits (mostly the best, or among the most stringent limits) on probabilities of above-mentioned processes were established; in particular, for half-life of ^{116}Cd neutrinoless 2β decay $T_{1/2}^{2\beta0\nu} > 1.7 \cdot 10^{23}$ yr with CL=90%. On this base, the restrictions on neutrino mass, right-handed admixtures in the weak interaction, Majoron-neutrino coupling constant, mass of γ quantum, etc., were derived. Two-neutrino 2β decay of ^{116}Cd was observed with $T_{1/2}^{2\beta2\nu} = 2.9 \cdot 10^{19}$ yr. Half-life ($T_{1/2}^{\beta} = 8.0 \cdot 10^{15}$ yr) and shape of 4-fold forbidden β decay of ^{113}Cd were measured. For the first time, α decays of ^{151}Eu ($T_{1/2}^{\alpha} = 5 \cdot 10^{18}$ yr), ^{180}W ($T_{1/2}^{\alpha} = 1.1 \cdot 10^{18}$ yr) to the ground state of the daughter nuclei, and α decay of ^{190}Pt to the first excited level of ^{186}Os ($T_{1/2}^{\alpha} = 2.6 \cdot 10^{14}$ yr) have been observed.

My individual activity in the group consists in simulation of experiments and in analysis and interpretation of experimental data. Several codes could be mentioned which were elaborated in a time when such software as GEANT (for simulation) or PAW (for data analysis) were unavailable:

– interactive program for one-dimensional γ spectra processing (search and decomposition of peaks, mathematical operations with spectra, calibration for energy and efficiency, transformation of spectra from one energy calibration to other);

– program for simulation of double beta decay, which takes into account initial angular and energy distributions of electrons in dependence on the mode of 2β decay, interactions of electrons with a source and a detector, geometry of measurements, etc.;

– program for calculation of detector's efficiency in measurements with γ sources;

– programs for analysis of data with low statistics.

In 1991–1998 I took part in the NEMO experiment devoted to investigation of 2β decay of ^{100}Mo, ^{116}Cd, ^{96}Zr, ^{82}Se. In measurements, carried out in the Fréjus Underground Laboratory (France), two-neutrino 2β decays of all these isotopes were observed and studied. In the framework of the work I made the following contributions:

– the models (and corresponding codes) were developed for description of initial kinematics of particles emitted in radioactive decay of nuclei: how many particles are emitted, their types, energies, direction of movements and time of emission. The work was performed for 27 isotopes, dangerous from the point of view to produce events mimicring 2β decay. Models took into account up to 48 excited levels of daughter nuclei and up to 166 different transitions between nuclear levels in deexcitation process (considering for all transitions the possibility to emit conversion electron or e^+e^- pair instead of γ quantum);

– a code for generation of 2β events in 12 different modes of double beta decay to ground and few (up to 5th) excited 0^+ and 2^+ levels of daughter nuclei for 16 nuclei (the most perspective double beta decay candidates from 69); $2\beta^-$, $2\beta^+$, $\epsilon\beta^+$ and 2ϵ processes were described without the Primakoff-Rosen approximation. The code of the event generator (models of 2β processes and decays of radioactive nuclides) contains near 8,000 Fortran lines;

– a geometrical model of the NEMO-3 installation was created (together with R.Arnold, IReS Strasbourg) for simulation of response functions and efficiencies of the NEMO-3 device for 2β decays and background events. Model (near 2500 lines of description) used 485 basic objects, 33 divisions, 525 rotation matrices and 40 materials to describe with high (μm) accuracy the device 7 m in diameter and 4.5 m in height. Full number of objects in the model was about 100,000; of them, 1940 were scintillator blocks for energy measurement and 39820 wires for particle tracking.

I also took part in other investigations:

– search for 2β processes in ^{106}Cd using big $CdWO_4$ crystal scintillator (together with the group of Prof. H.V.Klapdor-Kleingrothaus);

– calculations of the backgrounds (from intrinsic impurities, cosmogenic activities, external n, γ and μ fluxes) for the GENIUS, CAMEO, CARVEL, and GEM projects for the next generation high-sensitivity 2β decay experiments;

– search for 2β processes in ^{106}Cd using big NaI detectors (together with the group of Prof. R.Bernabei);

– search for 2β processes in ^{40,46,48}Ca and for β decay of ^{48}Ca using CaF_2 crystals (together with the group of Prof. R.Bernabei);

– search for 2β processes in ^{136,138}Ce and for α decay of ^{142}Ce using CeF_3 scintillator (together with the group of Prof. R.Bernabei);

– search for cluster decays of ^{127}I using NaI detector (together with the group of Prof. R.Bernabei);

– search for ^{7}Li solar axions by resonant excitation of ^{7}Li in a LiF sample (together with the group of Prof. R.Bernabei);

– search for 2β processes in ^{64,70}Zn and ^{180,186}W using $ZnWO_4$ crystal scintillators (together with the group of Prof. R.Bernabei);

– search for 2β processes in ^{106,108,114}Cd using $CdWO_4$ crystal scintillators (together with the group of Prof. R.Bernabei);

– precise measurements of the shape and half-life of 4-fold forbidden non-unique β decay of ^{113}Cd (together with the group of Prof. R.Bernabei);

– search for 2β processes in ^{96,104}Ru (together with the group of Prof. R.Bernabei);

– search for 2β processes in ^{190,198}Pt (together with the group of Prof. R.Bernabei);

– first search for 2β processes in ^{156,158}Dy (together with the group of Prof. R.Bernabei);

The experimental measurements were performed in the Gran-Sasso Underground Laboratory (Italy). In result, the most stringent limits on the probabilities of double β processes in ^{40}Ca, ^{46}Ca, ^{64}Zn, ^{96}Ru, ^{104}Ru, ^{106}Cd, ^{108}Cd, ^{114}Cd, ^{136}Ce, ^{138}Ce, ^{156}Dy, ^{158}Dy, ^{190}Pt, ^{198}Pt, α decay of ^{142}Ce, and other processes were established.

Several proposals can be pointed out, which appeared in result of my initiatives and led to interesting physical results:

– the data of the DAMA dark matter experiments with NaI and liquid ^{129}Xe detectors, performed by the group of Prof. R.Bernabei, were reanalyzed to extract the limits on the charge non-conserving processes: decays of electron (disappearance; decay to neutrino and γ quantum; and disappearance with nuclear excitations) and decays of nucleons, di- and tri-nucleons into invisible channels (processes with baryon number violation). The most stringent limits were obtained, in particular: $\tau(e^- \to invisible) > 2.4 \cdot 10^{24}$ yr, $\tau(e^- \to \gamma\nu_e) > 2.0 \cdot 10^{26}$ yr, $\tau(nn \to invisible) > 1.2 \cdot 10^{25}$ yr (all with 90% CL). Bounds on tri-nucleon disappearance are on the level of 10^{22} yr.

– limits on the nn, np and pp decays into invisible channels were further improved (with the BOREXINO CTF liquid scintillator detector of 4 t, and reanalyzing data of old radiochemical experiments) to the values of (at 90% CL): $\tau(nn \to invisible) > 4.9 \cdot 10^{25}$ yr, $\tau(np \to invisible) > 2.1 \cdot 10^{25}$ yr, $\tau(pp \to invisible) > 5.0 \cdot 10^{25}$ yr, the last two are currently the most stringent.

– number of free neutrons, born in big volumes with heavy water, was used to extract the limit on the proton life-time (the decay or disappearance of p in deuteron will produce free n). As a result, the best limit on the proton life-time independent on channel was derived from measurements with D_2O target (267 kg) at the Bugey atomic reactor: $\tau(p) > 4 \cdot 10^{23}$ yr with 95% CL, and the best at that time restriction on the proton disappearance was obtained using the data of the SNO detector (1000 t of D_2O): $\tau(p) > 3.5 \cdot 10^{28}$ yr with 90% CL.

– the data, accumulated with HPGe detector at the Baksan Neutrino Observatory by the group of A.A.Smolnikov, were used to extract the limit on the charge non-conserving β decay of ^{73}Ge: $\tau(^{73}\text{Ge}\to^{73}\text{As}) > 2.6 \cdot 10^{23}$ yr with 90% CL (it was the first application of the real-time approach in this field of investigation instead of previously used radiochemical method).

– β decay of ^{115}In to the first excited level of ^{115}Sn was observed at the first time with the data of the LENS collaboration. The branching ratio is only $1.2 \cdot 10^{-6}$ what corresponds to $T_{1/2} = 3.7 \cdot 10^{20}$ yr; it is β decay with the lowest known value of Q_β (155 ± 24 eV). In addition, limit on the charge non-conserving β decay of ^{115}In was determined as $\tau > 4.1 \cdot 10^{20}$ yr with 90% CL.

– $2\beta2\nu$ decay of ^{100}Mo to the first 0^+_1 excited level of ^{100}Ru ($E_{exc} = 1130$ keV) was observed with set-up with four HP Ge detectors ($\simeq$225 cm^3 each) and $T_{1/2} = 6.9^{+1.2}_{-1.1} \cdot 10^{20}$ yr. Limit on the CNC β decay of ^{100}Mo was determined as $\tau > 4.5 \cdot 10^{19}$ yr with 90% CL.

– semiempirical method, based on the Birks approach, was developed for description and prediction of quenching factors for light signals produced by ions in scintillators.

– α decay of ^{190}Pt to the first excited level of ^{186}Os ($E_{exc} = 137$ keV) was observed at the first time and half-life was determined as $T_{1/2} = (2.6 \pm 0.7) \cdot 10^{14}$ yr.

– the data, accumulated with BaF_2 scintillating detector contaminated by radium, were used to search for rare β and 2β decays of some short-lived nuclides in U/Th chains (^{212}Pb, ^{222}Rn, ^{226}Ra).

– the data, collected in the CRESST experiment with $CaWO_4$ scintillating bolometers, were used to extract limits on 2β processes in ^{40}Ca and ^{180}W which are the best to-date.

– energy of the first excited level of ^{115}Sn was measured very accurately as: $E_{exc} = 497.342(3)$ keV (with uncertainty of only 3 eV); this leads to the following Q_β value for the decay $^{115}\text{In} \to {}^{115}\text{Sn}^*$: $Q^*_\beta = 147 \pm 10$ eV (β decay with the lowest known Q_β value).

– idea on possibility of double alpha decay was considered, half-lives for naturally occuring nuclides were estimated and the first experimental limit for this process was set for ^{209}Bi as $T_{1/2} > 2.9 \cdot 10^{20}$ yr.

(Co)author of about 200 scientific publications; list of papers in refereed journals is given below.

MAIN SCIENTIFIC PAPERS BY V.I. TRETYAK (December 2023)

1. Yu.G.Zdesenko et al. Preliminary results of study of neutrinoless binary β-decay of ^{76}Ge. Bull. Ac. Sci. USSR, phys. ser. 49(1985)27-32.

2. Yu.G.Zdesenko et al. Results of an underground experimental search for neutrinoless double β decay of ^{76}Ge. Sov. J. Nucl. Phys. 43(1986)678-684.

3. F.A.Danevich et al. Search for 2β decay of ^{116}Cd with the help of a $^{116}CdWO_4$ scintillator. JETP Lett. 49(1989)476-479.

4. E.Buchner et al. Rare decays of mercury nuclei. Sov. J. Nucl. Phys. 52(1990)193-197.

5. V.V.Vasilenko et al. Low-background apparatus for study of rare processes of atomic-nucleus decay. Instr. Exp. Techniques 33(1990)46-52.

6. D.Blum et al. Search for γ rays following $\beta\beta$ decay of ^{100}Mo to excited states of ^{100}Ru. Phys. Lett. B 275(1992)506-511.

7. F.A.Danevich et al. The research of 2β decay of ^{116}Cd with enriched $^{116}CdWO_4$ crystal scintillators. Phys. Lett. B 344(1995)72-78.

8. R.Arnold et al. Performance of a prototype tracking detector for double beta decay measurements. Nucl. Instrum. and Methods in Phys. Res. A 354(1995)338-351.

9. S.F.Burachas et al. A search for ^{160}Gd double beta decay using GSO scintillators. Phys. At. Nucl. 58(1995)153-157.

10. D.Dassie et al. Two-neutrino double-β decay measurement of ^{100}Mo. Phys. Rev. D 51(1995)2090-2100.

11. R.Arnold et al. Observation of two neutrino double beta decay of ^{116}Cd with the tracking detector NEMO-2. JETP Lett. 61(1995)170-174.

12. A.Sh.Georgadze et al. Search for α decay of naturally occuring tungsten isotopes. JETP Lett. 61(1995)882-886.

13. V.I.Tretyak, Yu.G.Zdesenko. Tables of double beta decay data. At. Data Nucl. Data Tables 61(1995)43-90.

14. A.Sh.Georgadze et al. Study of ^{116}Cd double beta decay with $^{116}CdWO_4$ scintillators. Phys. At. Nucl. 58(1995)1093-1102.

15. S.Ph.Burachas et al. Large volume $CdWO_4$ crystal scintillators. Nucl. Instrum. and Methods in Phys. Research A 369(1996)164-168.

16. A.Sh.Georgadze et al. Beta-decay of ^{113}Cd. Phys. At. Nucl. 59(1996)1-5.

17. A.Sh.Georgadze et al. Activities of radioactive contaminations in cadmium tungstate crystals. Instr. and Exp. Technique 39(1996)183-188.

18. A.Sh.Georgadze et al. Cadmium tungstate scintillators of large volume. Instr. and Exp. Technique 39(1996)359-363.

19. F.A.Danevich et al. Investigation of $\beta^+\beta^+$ and β^+/EC decay of ^{106}Cd. Z. Physik A 355(1996)433-437.

20. R.Arnold et al. Double-β decay of ^{116}Cd. Z. Physik C 72(1996)239-247.

21. A.Sh.Georgadze et al. The research of double β decay of ^{116}Cd and ^{160}Gd. Bull. Ac. Sciences, ser. fiz. 61(1997)761-768 (in Russian).

22. I.Kisel et al. Cellular automaton and elastic net for event reconstruction in the NEMO-2 experiment. Nucl. Instrum. and Methods in Phys. Res. A 387(1997)433-442.

23. A.Sh.Georgadze et al. Research of rare α and β decays with crystals of cadmium- and zinc-tungstate. Bull. Ac. Sciences, ser. fiz. 61(1997)2187-2193 (in Russian).

24. V.Kovalenko and NEMO Collaboration. Cellular automaton and elastic net for event reconstruction in the NEMO-2 experiment. Nucl. Instrum. and Methods in Phys. Res. A 389(1997)169-172.

25. R.Arnold et al. Measurement and control of the ^{214}Bi contamination in the $\beta\beta$ NEMO-2 experiment. Nucl. Instrum. and Methods in Phys. Res. A 401(1997)144-155.

26. NEMO Collaboration (presented by A.S.Barabash). Investigation of double beta decay of ^{82}Se and ^{96}Zr with tracking detector NEMO-2. Nucl. Phys. A 629(1998)517c-522c.

27. A.S.Barabash and NEMO Collaboration. NEMO double beta decay experiments. Czechoslovak J. of Phys. 48(1998)155-164.

28. T.Fazzini et al. Pulse-shape discrimination with $CdWO_4$ crystal scintillators. Nucl. Instrum. and Methods in Phys. Research A 410(1998)213-219.

29. R.Arnold et al. Double-β decay of ^{82}Se. Nucl. Phys. A 636(1998)209-223.

30. F.A.Danevich et al. Limits on Majoron modes of ^{116}Cd neutrinoless 2β decay. Nucl. Phys. A 643(1998)317-328.

31. P.Belli et al. New limits on $2\beta^+$ decay processes in ^{106}Cd. Astropart. Phys. 10(1999)115-120.

32. P.Belli et al. New experimental limit on the electron stability and non-paulian transitions in Iodine atoms. Phys. Lett. B 460(1999)236-241.

33. A.S.Barabash et al. NEMO double beta decay experiments. Phys. Atom. Nucl. 62(1999)2031-2038.

34. R.Arnold et al. Double beta decay of ^{96}Zr. Nucl. Phys. A 658(1999)299-312.

35. R.Arnold et al. Testing the Pauli exclusion principle with the NEMO-2 detector. Eur. Phys. J. A 6(1999)361-366.

36. P.Belli et al. Charge non-conservation restrictions from the nuclear levels excitation of ^{129}Xe induced by the electron's decay on the atomic shell. Phys. Lett. B 465(1999)315-322.

37. P.Belli et al. New limits on the nuclear levels excitation of ^{127}I and ^{23}Na during charge nonconservation. Phys. Rev. C 60(1999)065501, 7 p.

38. P.Belli et al. New limits on spin-dependent coupled WIMPs and on 2β processes in ^{40}Ca and ^{46}Ca by using low radioactive CaF_2(Eu) crystal scintillators. Nucl. Phys. B 563(1999)97-106.

39. F.Piquemal (for the NEMO Collaboration). Double-beta decay with the NEMO experiment: Status of NEMO 3 detector. Phys. Atom. Nuclei 63(2000)1222-1224.

40. F.A.Danevich et al. New phase of the ^{116}Cd 2β-decay experiment with $^{116}CdWO_4$ scintillators. Phys. Atom. Nuclei 63(2000)1229-1237.

41. O.A.Ponkratenko, V.I.Tretyak, Yu.G.Zdesenko. Event generator DECAY4 for simulation of double-beta processes and decays of radioactive nuclei. Phys. Atom. Nuclei 63(2000)1282-1287.

42. P.Belli et al. Quest for electron decay $e^- \to \nu_e \gamma$ with a liquid xenon scintillator. Phys. Rev. D 61(2000)117301, 4 p.

43. F.A.Danevich et al. New results of ^{116}Cd double β decay study with $^{116}CdWO_4$ scintillators. Phys. Rev. C 62(2000)045501, 9 p.

44. R.Bernabei et al. Search for the nucleon and di-nucleon decay into invisible channels. Phys. Lett. B 493(2000)12-18.

45. G.Bellini et al. High sensitivity quest for Majorana neutrino mass with the BOREXINO counting test facility. Phys. Lett. B 493(2000)216-228.

46. G.Bellini et al. 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.

47. V.I.Tretyak, Yu.G.Zdesenko. Experimental limits on the proton life-time from the neutrino experiments with heavy water. Phys. Lett. B 505(2001)59-63.

48. F.A.Danevich et al. Quest for double beta decay of ^{160}Gd and Ce isotopes. Nucl. Phys. A 694(2001)375-391.

49. Yu.G.Zdesenko, O.A.Ponkratenko, V.I.Tretyak. High sensitivity GEM experiment on 2β decay of ^{76}Ge. J. Phys. G: Nucl. Part. Phys. 27(2001)2129-2146.

50. C.J.M.Longuemare (for the NEMO collaboration). The double β decay experiment NEMO-3. Part. Nucl. Lett. 3(2001)62-68.

51. G.Bellini et al. The CAMEO project: High sensitivity quest for Majorana neutrino mass with the BOREXINO counting test facility. Part. Nucl. Lett. 3(2001)116-130.

52. P.G.Bizzeti et al. Status of ^{116}Cd double β decay study with $^{116}CdWO_4$ scintillators. Part. Nucl. Lett. 6(2001)7-17.

53. P.Belli et al. New limits on 2β processes in ^{40}Ca and ^{46}Ca by using low radioactive CaF_2(Eu) crystal scintillators. Part. Nucl. Lett. 6(2001)18-25.

54. P.Belli et al. New experimental limits on the electron stability and excitation of nuclear levels in ^{23}Na, ^{127}I and ^{129}Xe induced by the electron decay on the atomic shell. Part. Nucl. Lett. 6(2001)58-68.

55. A.S.Barabash and NEMO Collaboration. NEMO Collaboration: Latest results and perspectives for the future. In: H.V.Klapdor-Kleingrothaus, "Sixty years of double beta decay", World Sci., 2001, p.1012-1018 (reprint of paper published in Proc. of the NEUTRINO'96 Conf., World Sci., 1997, p.374-380).

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57. V.I.Tretyak, Yu.G.Zdesenko. Tables of double beta decay data - an update. At. Data Nucl. Data Tables 80(2002)83-116.

58. A.A.Klimenko et al. Experimental limit on the charge non-conserving β decay of ^{73}Ge. Phys. Lett. B 535(2002)77-84.

59. R.Bernabei et al. Search for β and $\beta\beta$ decays in ^{48}Ca. Nucl. Phys. A 705(2002)29-39.

60. P.G.Bizzeti et al. Alpha decay of ^{180}W. Izvestiya AN, ser. fiz. 66(2002)630-635 (in Russian).

61. Yu.G.Zdesenko, F.A.Danevich, V.I.Tretyak. Has neutrinoless double β decay of ^{76}Ge been really observed? Phys. Lett. B 546(2002)206-215.

62. Yu.G.Zdesenko, V.I.Tretyak. To what extent does the latest SNO result guarantee the proton stability? Phys. Lett. B 553(2003)135-140.

63. F.A.Danevich et al. α activity of natural tungsten isotopes. Phys. Rev. C 67(2003)014310, 8 p.

64. F.A.Danevich et al. 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.

65. P.Belli et al. Performances of a CeF_3 crystal scintillator and its application to the search for rare processes. Nucl. Instrum. and Meth. in Phys. Research A 498(2003)352-361.

66. V.I.Tretyak, Yu.G.Zdesenko. New limit on the proton lifetime from neutrino experiments with heavy water. Phys. At. Nucl. 66(2003)514-516.

67. H.O.Back et al. New limits on nucleon decays into invisible channels with the BOREXINO counting test facility. Phys. Lett. B 563(2003)23-34.

68. F.A.Danevich et al. Search for 2β decay of cadmium and tungsten isotopes: Final results of the Solotvina experiment. Phys. Rev. C 68(2003)035501, 12 p.

69. P.G.Bizzeti et al. Double β-decay of ^{116}Cd. Izvestiya AN, ser. fiz. 67(2003)630-634 (in Russian).

70. P.G.Bizzeti et al. α-Decay of natural tungsten isotopes. Izvestiya AN, ser. fiz. 67(2003)635-641 (in Russian).

71. A.Sh.Georgadze et al. On the possibility to measure Solar neutrinos with Xenon detector. Izvestiya AN, ser. fiz. 67(2003)1518-1525 (in Russian).

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