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# GERDA

## the GERmanium Detector Array



### List of Publications

all printed work (sorted by time)

1. *Adsorption techniques for gas purification*,  
H. Simgen,  
In Proc. *Topical Workshop on Low Radioactivity Techniques LRT 2004*,  
AIP Conference Procs. **785** (2005) 121, Sudbury, Ont., Canada. 12-14 Dec. 2004, AIP, 2005.
2. *GERDA: A new Ge-76 double  $\beta$  decay experiment at Gran Sasso*,  
H. Simgen,  
Nucl. Phys. **B143** (2005) 567.
3. *The GERmanium DETECTOR ARRAY (GERDA) for the search of neutrinoless  $\beta\beta$  decays of Ge-76 at LNGS*,  
S. Schonert, I. Abt, M. Altmann, A.M. Bakalyarov, I. Barabanov, C. Bauer, M. Bauer, E. Bellotti, S. Belogurov, S.T. Belyaev, A. Bettini, I. Bezrukov, V. Brudanin, C. Buttner, V.P. Bolotsky, A. Caldwell, C. Cattadori, M.V. Chirchenko, O. Chkvorets, H. Clement, E. Demidova, A. Di Vacri, J. Eberth, V. Egorov, E. Farnea, A. Gangapshev, G.Y. Grigoriev, V. Gurentsov, K. Gusev, W. Hampel, G. Heusser, W. Hofmann, L.V. Inzhechik, J. Jochum, M. Junker, S. Katulina, J. Kiko, I.V. Kirpichnikov, A. Klimenko, K.T. Knopfle, O. Kochetov, V.N. Kornoukhov, R. Kotthaus, V. Kusminov, M. Laubenstein, V.I. Lebedev, X. Liu, H.G. Moser, I. Nemchenok, L. Pandola, P. Peiffer, R.H. Richter, K. Rottler, C.R. Alvarez, V. Sandukovsky, S. Schonert, S. Scholl, J. Schreiner, B. Schwingenheuer, H. Simgen, A. Smolnikov, A. Tikhomirov, C. Tomei, C.A. Ur, A.A. Vasenko, S. Vasiliev, D. Weisshaar, M. Wojcik, E. Yanovich, J. Yurkowski, S.V. Zhukov, and G. Zuzel,  
In Proc. *Nucl. Phys.* **B**,  
Nucl. Phys. **B145** (2005) 242, 2005.
4. *Low  $^{222}\text{Rn}$  nitrogen gas generator for ultra-low background counting systems*,  
M. Wojcik and G. Zuzel,  
Nucl. Instr. Methods **A539** (2005) 427.
5. *Low level counting from meteorites to neutrinos*,  
G. Heusser,  
In Proc. *Topical Workshop on Low Radioactivity Techniques LRT 2004*,  
AIP Conference Procs. **785** (2005) 39, Sudbury, Ont., Canada. 12-14 Dec. 2004, AIP, 2005.
6. *Operation of bare HP-Germanium detectors in liquid argon (LAr)*,  
P. Peiffer, D. Motta, S. Schoenert, and H. Simgen,  
Nucl. Phys. **B143** (2005) 511.
7. *Single-transistor option for high-resolution  $\gamma$ -ray spectroscopy in hostile environments*,  
A. Pullia, F. Zocca, and C. Cattadori,  
In Proc. *Fajardo*,  
p. 387, Fajardo, Puerto Rico. 23-29 Oct. 2005, 2005.

8. *Terra Incognita I*,  
M. Lindner and S. Schonert,  
Nucl. Phys. **B145** (2005) 361.
9. *The  $^{76}\text{Ge}$  double- $\beta$  decay experiment GERDA at LNGS*,  
M. Wojcik,  
Acta Physica Polonica **B37** (2006) 1923.
10. *Cosmogenic activation of germanium and its reduction for low background experiments*,  
S. Belogurov, I. Barabanov, L. Bezrukov, A. Denisov, V. Kornoukhov, and N. Sobolevsky,  
Nucl. Instr. Methods **B251** (2006) 115.
11. *A fast VLSI preamplifier for segmented HPGe  $\gamma$ -ray detectors*,  
A. Pullia, F. Zocca, S. Riboldi, and C. Cattadori,  
In Proc. *IEEE San Diego*,  
p. 4, San Diego, CA, USA. 29 Oct.-4 Nov. 2006, 2006.
12. *Geant4 and its validation*,  
K. Amako, S. Guatelli, V. Ivanchenko, M. Maire, B. Mascialino, K. Murakami, L. Pandola, S. Parlati,  
M.G. Pia, M. Piergentili, T. Sasaki, and L. Urban,  
Nucl. Phys. **B150** (2006) 44.
13. *GERDA, a GERmanium detector array for the search for neutrinoless  $\beta\beta$  decay in  $^{76}\text{Ge}$* ,  
L. Pandola and C. Tomei,  
In Proc. *Particles and Nuclei: Seventeenth International Conference on Particles and Nuclei*,  
AIP Conference Procs. **842** (2006) 843, Sante Fe, NM, USA. 23-30 Oct. 2005, AIP, 2006.
14. *GERDA: a germanium detector array to search for neutrinoless double  $\beta$  decay*,  
E. Bellotti,  
J. Phys.: Conf. Ser. **39** (2006) 338.
15. *GERDA, the GERmanium Detector Array for the search of neutrinoless double beta decay of Ge-76*,  
K. T. Knoepfle for the GERDA collaboration,  
In Proc. *PoS HEP2005*,  
PoS HEP2005 (2006) 169, Lisboa, 2006.
16. *GERmanium detector array, GERDA*,  
X. Liu,  
In Proc. *Phys. Scr.* ,  
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17. *Investigation of double- $\beta$  decay at the Institute of Theoretical and Experimental Physics (ITEP, Moscow)*,  
O.Ya. Zeldovich and I.V. Kirpichnikov,  
Phys. Atom. Nucl. **69** (2006) 1657.
18. *Low-level techniques applied in BOREXINO and GERDA*,  
G. Heusser, H. Simgen, and G. Zuzel,  
J. Phys.: Conf. Ser. **39** (2006) .
19. *Low-noise amplification of  $\gamma$ -ray detector signals in hostile environments*,  
A. Pullia, F. Zocca, and C. Cattadori,  
IEEE Transactions on Nuclear Science **53** (2006) 1744.
20. *MaGe: a Monte Carlo framework for the Gerda and Majorana double  $\beta$  decay experiments*,  
M. Bauer, S. Belogurov, Y.D. Chan, M. Descovich, J. Detwiler, M. Di Marco, B. Fujikawa, D. Franco,  
V. Gehman, R. Henning, K. Hudek, R. Johnson, D. Jordan, K. Kazkaz, A. Klimenko, M. Knapp,  
K. Kroeninger, K. Lesko, X. Liu, M. Marino, A. Mokhtarani, L. Pandola, M. Perry, A. Poon, D. Radford,  
C. Tomei, and C. Tull,  
J. Phys.: Conf. Ser. **39** (2006) 1.
21. *MUCR42BETA: muon capture rates for double- $\beta$  decay*,  
V. Egorov, V. Brudanin, K. Gromov, A. Klinskih, M. Shirchenko, Ts. Vylov, I. Yutlandov, D. Zinatulina,  
C. Briancon, C. Petitjean, and O. Naviliat-Cuncic,

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22. *New requirements on enriched isotopes for experiments studying neutrinoless double  $\beta$ -decay (GERDA experiment)*,  
A.N. Shubin, A.N. Gilev, D.B. Kononov, A.A. Mis'kov, E.A. Nikitina, G.M. Skorynin, I.R. Barabanov, L.B. Bezrukov, A.N. Denisov, N.M. Sobolevskii, S.G. Belogurov, V.N. Kornoukhov, M. Altman, and A. Caldwell,  
Atomic Energy **101** (2006) 588.
  23. *Signal discovery in sparse spectra: a bayesian analysis*,  
A. Caldwell and K. Kroninger,  
Phys. Rev. D **74** (2006) 92003.
  24. *Status and Perspectives of Neutrino Physics*,  
A. Bettini,  
Nucl. Phys. **B151** (2006) 270.
  25. *Status of the Germanium Detector Array (GERDA) for the search of neutrinoless  $\beta\beta$  decays of Ge-76 at LNGS*,  
S. Schonert,  
In Proc. *Prog. Part. and Nucl. Phys.* ,  
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  26. *Status of the Germanium Detector Array (GERDA) for the search of neutrinoless  $\beta\beta$  decays of  $^{76}\text{Ge}$  at LNGS*,  
S. Schönert,  
Prog. Part. and Nucl. Phys. **57** (2006) 241.
  27. *Status of the Germanium Detector Array (GERDA) in the search of neutrinoless  $\beta\beta$  decays of Ge-76 at LNGS*,  
S. Schönert, I. Abt, M. Altmann, A.M. Bakalyarov, I. Barabanov, C. Bauer, M. Bauer, E. Bellotti, S. Belogurov, S.T. Belyaev, A. Bettini, L. Bezrukov, V. Brudanin, V.P. Bolotsky, A. Caldwell, C. Cattadori, M.V. Chirchenko, O. Chkvorets, E. Demidova, A. Di Vacri, J. Eberth, V. Egorov, E. Farnea, A. Gangapshev, J. Gasparro, P. Grabmayr, G.Y. Grigoriev, V. Gurentsov, K. Gusev, W. Hampel, G. Heusser, M. Heisel, W. Hofmann, M. Hult, L.V. Inzhechik, J. Jochum, M. Junker, S. Katulina, J. Kiko, I.V. Kirpichnikov, A. Klimenko, M. Knapp, K.T. Knopfle, O. Kochetov, V.N. Kornoukhov, K. Kroninger, V.V. Kuzminov, M. Laubenstein, V.I. Lebedev, X. Liu, B. Majorovits, G. Marissens, I. Nemchenok, L. Pandola, P. Peiffer, A. Pullia, C.R. Alvarez, V. Sandukovsky, S. Scholl, J. Schreiner, U. Schwan, B. Schwingenheuer, H. Simgen, A. Smolnikov, F. Stelzer, A.V. Tikhomirov, C. Tomei, C.A. Ur, A.A. Vasenko, S. Vasiliev, D. Weisshaar, M. Wojcik, E. Yanovich, J. Yurkowski, S.V. Zhukov, F. Zocca, and G. Zuzel,  
In Proc. *Phys. Atom. Nucl.* ,  
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  28. *Status of the Germanium detector array (GERDA) in the search of neutrinoless  $\beta\beta$  decays of  $^{76}\text{Ge}$  at LNGS*,  
S. Schönert, I. Abt, M. Altmann, A.M. Bakalyarov, I. Barabanov, C. Bauer, M. Bauer, E. Bellotti, S. Belogurov, S.T. Belyaev, A. Bettini, L. Bezrukov, V. Brudanin, V.P. Bolotsky, A. Caldwell, C. Cattadori, M.V. Chirchenko, O. Chkvorets, E. Demidova, A. Di Vacri, J. Eberth, V. Egorov, E. Farnea, A. Gangapshev, J. Gasparro, P. Grabmayr, G.Y. Grigoriev, V. Gurentsov, K. Gusev, W. Hampel, G. Heusser, M. Heisel, W. Hofmann, M. Hult, L.V. Inzhechik, J. Jochum, M. Junker, S. Katulina, J. Kiko, I.V. Kirpichnikov, A. Klimenko, M. Knapp, K.T. Knopfle, O. Kochetov, V.N. Kornoukhov, K. Kroninger, V.V. Kuzminov, M. Laubenstein, V.I. Lebedev, X. Liu, B. Majorovits, G. Marissens, I. Nemchenok, L. Pandola, P. Peiffer, A. Pullia, C.R. Alvarez, V. Sandukovsky, S. Scholl, J. Schreiner, U. Schwan, B. Schwingenheuer, H. Simgen, A. Smolnikov, F. Stelzer, A.V. Tikhomirov, C. Tomei, C.A. Ur, A.A. Vasenko, S. Vasiliev, D. WeiBhaar, M. Wojcik, E. Yanovich, J. Yurkowski, S.V. Zhukov, F. Zocca, and G. Zuzel,  
Phys. Atom. Nucl. **69** (2006) 2101.
  29. *Towards pulse shape analysis for the GERDA experiment*,  
K. Kroninger,  
In Proc. *Prog. Part. and Nucl. Phys.* ,  
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30. *Ultrapure gases for GERDA*,  
H. Simgen,  
In Proc. *Prog. Part. and Nucl. Phys.* ,  
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31. *Background reduction in neutrinoless double  $\beta$  decay experiments using segmented detectors - A Monte Carlo study for the GERDA setup*,  
I. Abt, M. Altmann, A. Caldwell, K. Kröniger, X. Liu, B. Majorovits, L. Pandola, and C. Tomei,  
*Nucl. Instr. Methods* **A570** (2007) 479.
32. *Background reduction in neutrinoless double  $\beta$  decay experiments using segmented detectors-A Monte Carlo study for the GERDA setup*,  
K. Kröniger, I. Abt, M. Altmann, A. Caldwell, X. Liu, B. Majorovits, L. Pandola, and C. Tomei,  
*Nucl. Instr. Methods* **A570** (2007) 479.
33. *Behavior of the  $^{222}\text{Rn}$  daughters on copper surfaces during cleaning*,  
M. Wojcik and G. Zuzel,  
In Proc. *Topical Workshop on Low Radioactivity Techniques: LRT 2006*,  
AIP Conference Procs. **897** (2007) 53, Aussois, France. 1-4 Oct. 2006, AIP, 2007.
34. *Characterization of the first true coaxial 18-fold segmented n-type prototype HPGe detector for the GERDA project*,  
I. Abt, A. Caldwell, D. Gutknecht, K. Kröniger, M. Lampert, X. Liu, B. Majorovits, D. Quirion, F. Stelzer, and P. Wendling,  
*Nucl. Instr. Methods* **A577** (2007) 574.
35. *A comparison of low-level  $\gamma$ -spectrometers within the GERDA collaboration*,  
D. Budjas, M. Heisel, M. Hult, A. Klimenko, M. Laubenstein, P. Lindahl, H. Simgen, A. Smolnikov, C. Tomei, and S. Vasiliev,  
In Proc. *Topical Workshop on Low Radioactivity Techniques: LRT 2006*,  
AIP Conference Procs. **897** (2007) 26, Aussois, France. 1-4 Oct. 2006, AIP, 2007.
36. *Feasibility study of the observation of the neutrino accompanied double beta-decay of  $^{76}\text{Ge}$  to the  $0^+$ -excited state of  $^{76}\text{Se}$  using segmented germanium detectors*,  
K. Kröniger, L. Pandola, and V. I. Tretyak,  
*Ukr. J. of Physics***52** (2007) 1036.
37. *GERDA. Germanium detector array. Search for neutrino-less  $\beta\beta$  Decay of  $^{76}\text{Ge}$* ,  
A. Bettini,  
*Nucl. Phys.* **B168** (2007) 67.
38. *The GERmanium Detector Array , GERDA*,  
K. Kröniger,  
In Proc. *J. Phys.: Conf. Ser.*,  
*J. Phys.:* Conf. Ser.**110** (2007) 082010, IOP, 2007.
39. *The GERmanium Detector Array read-out: Status and developments*,  
C. Cattadori, O. Chkvorets, M. Junker, K. Kroeninger, L. Pandola, A. Pullia, V. Re, C. Tomei, C. Ur, and F. Zocca,  
In Proc. *Nucl. Instr. Methods A*,  
*Nucl. Instr. Methods* **A572** (2007) 479, 2007.
40. *Identification of photons in double beta-decay experiments using segmented germanium detectors - studies with a GERDA Phase II prototype detector*,  
I. Abt, A. Caldwell, K. Kröniger, J. Liu, X. Liu, and B. Majorovits,  
*Nucl. Instr. Methods* **A583** (2007) 332.
41. *Liquid argon as active shield and coolant for bare germanium detectors – A novel background supression method for the GERDA  $0\nu\beta\beta$  experiment*,  
Peter Peiffer,  
PhD thesis, Max Planck Institut für Kernphysik, Heidelberg, July 2007.
42. *Low-Level Gammaspektroskopie im Rahmen des GERDA-Experimentes zur Suche nach dem neutrinolosen Doppel-Betazerfall in  $^{76}\text{Ge}$* ,

- Werner Maneschg,  
Diploma thesis, U. Heidelberg, July 2007.
43. *Monte Carlo evaluation of the muon-induced background in the GERDA double  $\beta$  decay experiment*,  
L. Pandola, M. Bauer, K. Kröniger, X. Liu, C. Tomei, S. Belogurov, D. Franco, A. Klimenko, and  
M. Knapp,  
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  44. *Muon-induced signals and isotope production in the GERDA experiment*,  
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In Proc. *Topical Workshop on Low Radioactivity Techniques: LRT 2006*,  
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  45. *A novel low background cryogenic detector for radon in gas*,  
M. Wojcik and G. Zuzel,  
In Proc. *Topical Workshop on Low Radioactivity Techniques: LRT 2006*,  
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  46. *Operation of bare HP-Germanium detectors in liquid argon (LAr)*,  
P. Peiffer, D. Motta, S. Schönert, and H. Simgen,  
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  47. *Photon identification with segmented germanium detectors in low radiation environments*,  
I. Abt, A. Caldwell, K. Kroninger, J. Liu, X. Liu, B. Majorovits, and F. Stelzer,  
In Proc. *Topical Workshop on Low Radioactivity Techniques: LRT 2006*,  
AIP Conference Procs. **897** (2007) 9, Aussois, France. 1-4 Oct. 2006, AIP, 2007.
  48. *Prompte Gamma Aktivierungsanalyse an  $^{76}\text{Ge}$* ,  
Georg Meierhofer,  
Diploma thesis, Physikalisches Institut, Universität Tübingen, December 2007.
  49. *Pulse shape discrimination studies in a liquid Argon scintillation detector*,  
Tina Pollmann,  
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  50. *Pulse shapes from electron and photon induced events in segmented high-purity germanium detectors*,  
I. Abt, A. Caldwell, K. Kröniger, J. Liu, X. Liu, and B. Majorovits,  
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  51. *Techniques to distinguish between electron and photon induced events using segmented germanium detectors*,  
Kevin Kröniger,  
PhD thesis, TU München, Max Planck Institut für Physik, München, July 2007.
  52. *Ultrapure gases - from the production plant to the laboratory*,  
H. Simgen and G. Zuzel,  
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AIP Conference Procs. **897** (2007) 45, Aussois, France. 1-4 Oct. 2006, AIP, 2007.
  53. *An intercomparison of Monte Carlo codes used in  $\gamma$ -ray spectrometry*,  
T. Vidmar, I. Aubineau-Laniece, M.J. Anagnostakis, D. Arnold, R. Brettner-Messler, D. Budjas, M. Ca-  
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  54. *Interlockkontrolle und Schleusensteuerung des GERDA-Experiments*,  
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  55. *Measurements of extremely low radioactivity levels in stainless steel for GERDA*,  
W. Maneschg, M. Laubenstein, D. Budjas, W. Hampel, G. Heusser, K.T. Knopfle, B. Schwingenheuer,

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56. *Neutron- and muon-induced background in underground physics experiments*,  
V.A. Kudryavtsev, L. Pandola, and V. Tomasello,  
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  57. *Neutron capture cross section of Ge-76*,  
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  58. *Neutron interactions as seen by a segmented germanium detector*,  
I. Abt, A. Caldwell, K. Kroninger, J. Liu, X. Liu, and B. Majorovits,  
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  59. *Operation of bare HPGe detectors in LAr/LN<sub>2</sub> for the GERDA experiment*,  
Marik Barnabe Heider, Carla Cattadore, Oleg Chkvorets, Assunta di Vacri, Konstantin Gusev, Stefan Schönert, and Mark Shirchenko,  
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  60. *Pulse shape analysis of scintillation signals from pure and xenon-doped liquid argon for radioactive background identification*,  
P. Peiffer, T. Pollmann, S. Schönert, A. Smolnikov, and S. Vasiliev,  
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  61. *Search for Double Beta Decay with HPGe Detectors at the Gran Sasso Underground Laboratory*,  
Oleg Chkvorets,  
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  62. *Test of pulse shape analysis using single Compton scattering events*,  
I. Abt, A. Caldwell, K. Kroninger, J. Liu, X. Liu, and B. Majorovits,  
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  65. *Characterization of a Broad Energy Germanium detector through advanced pulse shape analysis techniques for the GERDA double-beta decay experiment* ,  
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  66. *Design, Simulation und Aufbau des Gerda-Myonvetos*,  
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  67. *Development of Segmented Germanium Detectors for Neutrinoless Double Beta Decay Experiments*,  
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  68. *Fast scintillation light from CaMoO<sub>4</sub> crystals*,  
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70. *The GERDA muon veto Cherenkov detector*,  
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72. *High sensitivity radon emanation measurements*,  
G. Zuzel and H. Simgen,  
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73. *Neutron capture cross sections of Ge-74, Ge-76, and As-75 at 25 keV*,  
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