Juergen Reichenbacher
Biographical Sketch

Appointments

- South Dakota School of Mines and Technology: Associate-Professor (08/2020 – present)
- South Dakota School of Mines and Technology: Assistant-Professor (08/2014 – 08/2020)
- University of Alabama, Tuscaloosa, AL: Research Scientist   (08/2011 – 08/2014)

Professional Preparation

- University of Alabama, Tuscaloosa, AL: (2009 – 2011)
  Postdoctoral Appointee at Department of Physics & Astronomy (Prof. J. Busenitz).
- Argonne National Laboratory, Argonne, IL: (2005 – 2008)
  Postdoctoral Appointee at High Energy Physics Division (Dr. M. Goodman).
- Karlsruhe Institute of Technology (KIT):   11/2004 - Ph.D.
- Karlsruhe Institute of Technology (KIT):   09/1998 - Diploma-Physicist (M.S. Thesis)

Selected Publications

1. D. S. Akerib *et al.* [LZ], *"Searches for Light Dark Matter and Evidence of Coherent Elastic Neutrino-Nucleus Scattering of Solar Neutrinos with the LUX-ZEPLIN (LZ) Experiment,"* (2025) [arXiv:2512.08065 [hep-ex]].

2. J. Aalbers *et al.* [LZ], *"First Dark Matter Search Results from the LUX-ZEPLIN (LZ) Experiment,"* Phys. Rev. Lett. **131**, no.4, 041002 (2023) [arXiv:2207.03764 [hep-ex]].

3. B. Abi *et al.* [DUNE], *"Supernova Neutrino Burst Detection with the Deep Underground Neutrino Experiment,"* Eur. Phys. J. C **81**, no.5, 423 (2021) [arXiv:2008.06647 [hep-ex]].

4. C.M. Jackson, E. Church, J. Reichenbacher *et al.*, *"Low Background kTon-Scale Liquid Argon Time Projection Chambers,"* Snowmass2021 - Letter of Interest

5. D. S. Akerib *et al.* [LZ], *"The LUX-ZEPLIN (LZ) radioactivity and cleanliness control programs,"* Eur. Phys. J. C **80**, no.11, 1044 (2020) [arXiv:2006.02506 [physics.ins-det]].

6. B. Abi *et al.* [DUNE Collaboration], *"Deep Underground Neutrino Experiment (DUNE) Technical Design Report, vol IV: Far Detector Single-phase Technology,"* arXiv:2002.03010

7. B. J. Mount *et al.* (LZ Collaboration), *"LUX-ZEPLIN (LZ) Technical Design Report,"* arXiv:1703.09144.

8. Y. Abe *et al.* [Double Chooz Collaboration], *"Reactor electron antineutrino disappearance in the Double Chooz experiment,"* Phys. Rev. D **86**, 052008 (2012) [arXiv:1207.6632 [hep-ex]].

9. Y. Abe *et al.* [Double Chooz Collaboration], *"Indication of Reactor $\bar{\nu}_e$ Disappearance in the Double Chooz Experiment,"* Phys. Rev. Lett. **108**, 131801 (2012) [arXiv:1112.6353 [hep-ex]].

10. P. Adamson *et al.* (MINOS Collaboration), *"Measurement of the Atmospheric Muon Charge Ratio at TeV Energies with MINOS"*, Phys. Rev. D **76**, 052003 (2007).

11. D. G. Michael *et al.* [MINOS Collaboration], *"Observation of muon neutrino disappearance with the MINOS detectors and the NuMI neutrino beam,"* Phys. Rev. Lett. **97**, 191801 (2006) doi:10.1103/PhysRevLett.97.191801 [hep-ex/0607088].

12. B. Armbruster *et al.* (KARMEN Collaboration), *"Upper Limits for Neutrino Oscillations Muon-Anti-Neutrino $\rightarrow$ Electron-Anti-Neutrino from Muon Decay at Rest"*, Phys. Rev. D **65**, 112001 (2002).

Recent Achievements

1. Leader of DUNE Backgrounds Task Force for the far detector (Oct. 2018 - present) and former convener of the Radiopurity/Purity and Cleanliness Working Group in DUNE (Oct. 2015 - July 2017).

2. Convenor of working group on medical imaging with germanium detectors for Ge-STAR.

3. Subgroup leader for the Radioactive Source Deployment System (RSDS) within DUNE Calibration and Cryogenic Instrumentation (CALCI) Consortium.

4. One of the organizers of the 2020 workshop on *"Low Energy Physics in Liquid Argon (LEP-LAr)"* and one of the main authors of the Snowmass2021 LOI *"Low Background kTon-Scale Liquid Argon Time Projection Chambers"*.

5. Received South Dakota R&D Innovation Grant 2017 for design of new unique large-volume Alpha-Beta-radiation Assay CHamber (AlphaBACH) that can measure surface radiation on large objects of any shape on par with world's most sensitive devices which in contrast can only scan flat samples.

6. Developed and successfully employed a multipurpose calibration deployment system for the Double Chooz reactor neutrino experiment and was leader of this calibration subsystem.

7. Performed full-blown Feldman-Cousins neutrino oscillation analyses for the Double Chooz and KARMEN neutrino experiments (1st unified approach result cited by Louis Lyons in his well-known book on *"Statistics for Nuclear and Particle Physics"* published by Cambridge University Press).

Thesis Advisees (8):
   Jason Stock (Air Force Research Labs),
   Madan Timalsina (Fellowship at Lawrence Berkeley National Laboratory),
   Erika Redinger (Paloniitty, Tampere/Finland),
   Jack Genovesi (Postdoc at Penn State),
   Michael Fodroci (Tokai University),
   James Haiston, Tyler Rath, Noomen Belmechri (all SDSM&T).

Postgraduate-Scholar Sponsorees (1):
   Dr. Gleb Sinev (SDSM&T)