

Juergen Reichenbacher

Biographical Sketch

Professional Preparation

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

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)

Selected Publications

1. 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]].
2. C.M. Jackson, E. Church, J. Reichenbacher *et al.*, “*Low Background kTon-Scale Liquid Argon Time Projection Chambers*,” Snowmass2021 - Letter of Interest
3. Akerib, D. S. et al [LZ Collaboration], “*Enhancing the sensitivity of the LUX-ZEPLIN (LZ) dark matter experiment to low energy signals*,” arXiv:2101.08753
4. 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]].
5. B. Abi *et al.* [DUNE Collaboration], “*Deep Underground Neutrino Experiment (DUNE) Technical Design Report, vol IV: Far Detector Single-phase Technology*,” arXiv:2002.03010
6. B. J. Mount *et al.* (LZ Collaboration), “*LUX-ZEPLIN (LZ) Technical Design Report*,” arXiv:1703.09144.
7. D. Montanari, M. Adamowski, A. Hahn, B. Norris, J. Reichenbacher, R. Rucinski, J. Stewart and T. Tope, “*Performance and Results of the LBNE 35 Ton Membrane Cryostat Prototype*,” *Phys. Procedia* **67**, 308-313 (2015)
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. 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*”.
3. Subgroup leader for the Radioactive Source Deployment System (RSDS) within DUNE Calibration and Cryogenic Instrumentation (CALCI) Consortium.
4. 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.
5. Developed and successfully employed a multipurpose calibration deployment system for the Double Chooz reactor neutrino experiment and was leader of this calibration subsystem.
6. 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 (5):

Jason Stock (AEgis Technologies),
 Erika Redinger (Paloniitty, Tampere/Finland),
 Madan Timalisina, James Haiston, Jack Genovesi (all SDSM&T)

Postgraduate-Scholar Sponsorees (1):

Dr. Gleb Sinev (SDSM&T)