Zelimir Djurcic, PhD

High-Energy Physics Division Argonne National Laboratory

Full CV: https://www.hep.anl.gov/zdjurcic/CV/Djurcic_CV_web.pdf

9700 S. Cass Avenue (w) 630-252-7549
Argonne, IL 60439 (h) 630-338-9412
email: zdjurcic@anl.gov, zdjurcic@gmail.com (fax) 630-252-5076

Research and Professional Experience

Staff Physicist November 2009 – Current Argonne National Laboratory
Major scientific interests: CP-violation with neutrinos, neutrino-less double-beta decay, tests of sterile neutrinos.

Education and Training

Postdoctoral Fellow December 2004 – November 2009 Columbia University
PhD Physics December 2004 University of Alabama

Selected Publications (H-index 73 – http://inspire.net – 27,000 citations)

1. A. Rafique and Z. Djurcic (for DUNE Collaboration), "Low-energy electron identification and reconstruction using DUNE prototype ProtoDUNE", draft production in progress, 2022.
2. B. Abi et al. [DUNE], "Experiment Simulation Configurations Approximating DUNE TDR," arXiv:2103.04797.
3. B. Abi et al. [DUNE], "First results on ProtoDUNE-SP liquid argon time projection chamber performance from a beam test at the CERN Neutrino Platform," [arXiv:2007.06722 [physics.ins-det]], JINST 15 (2020) 12, P12004.
4. B. Abi et al. [DUNE], "Prospects for Beyond the Standard Model Physics Searches at the Deep Underground Neutrino Experiment," arXiv:2008.12769.
5. B. Abi et al. [DUNE], "Supernova Neutrino Burst Detection with the Deep Underground Neutrino Experiment," arXiv:2008.06647.
6. B. Abi et al. [DUNE], "Neutrino interaction classification with a convolutional neural network in the DUNE far detector," arXiv:2006.15052.
7. B. Abi et al. [DUNE], "Long-baseline neutrino oscillation physics potential of the DUNE experiment," arXiv:2006.16043.
8. M. A. Acero *et al*. [NOvA Collaboration], "First Measurement of Neutrino Oscillation Parameters using Neutrinos and Antineutrinos by NOvA," Phys.Rev.Lett. 123 (2019) no.15, 151803.
9. H. de Kerret *et al*. [Double Chooz Collaboration], "First Double Chooz θ_{13} Measurement via Total Neutron Capture Detection," arXiv:1901.09445.
10. A. A. Aguilar-Arevalo *et al*. [MiniBooNE DM Collaboration], "Dark Matter Search in Nucleon, Pion, and Electron Channels from a Proton Beam Dump with MiniBooNE," Phys. Rev. D 98, no. 11, 112004 (2018), arXiv:1807.06137.
11. A. A. Aguilar-Arevalo *et al*. [MiniBooNE Collaboration], "Significant Excess of ElectronLike Events in the MiniBooNE Short-Baseline Experiment," Phys. Rev. Lett. 121, no. 22, 221801 (2018), arXiv:1805.12028.
12. M. Drewes *et al*., "A White Paper on keV Sterile Neutrino Dark Matter," JCAP01 (2017) 025, arXiv:1602.04816.
13. P. Adamson *et al*. [NOvA Collaboration], "First measurement of electron neutrino appearance in NOvA," Phys. Rev. Lett. 116, no. 15, 151806 (2016), arXiv:1601.05022.
14. M. Bass, M. Bishai, D. Cherdack, M. Diwan, Z. Djurcic et al., "Baseline optimization for the measurement of CP violation and mass hierarchy in a long-baseline neutrino oscillation experiment", arXiv:1311.0212v2, PRD (2014).
15. Y. Abe et al. [Double Chooz Collaboration], "Indication for the disappearance of reactor electron antineutrinos in the Double Chooz experiment, " Phys. Rev. Lett. 108, 131801 (2012).
16. N. Ackerman *et al*. "Observation of Two-Neutrino Double-Beta Decay in Xe-136 with EXO-200," Phys. Rev. Lett. 107, 212501 (2011), arXiv:1108.4193 [nucl-ex].
17. A. A. Aguilar-Arevalo et al. [MiniBooNE Collaboration], "Event Excess in the MiniBooNE Search for $\bar{\nu}_\mu \rightarrow \bar{\nu}_e$ Oscillations," Phys. Rev. Lett. 105, 181801 (2010), arXiv:1007.1150.
18. P. Adamson et al., "First Measurement of $\nu\mu$ and νe Events in an Off-Axis Horn-Focused Neutrino Beam," Phys. Rev. Lett. 102, 211801 (2009), arXiv:0809.2447.
19. T. Araki et al. [KamLAND Collaboration], "Measurement of neutrino oscillation with KamLAND: Evidence of spectral distortion," Phys. Rev. Lett. 94, 081801 (2005).

Synergic Activities

- Presenter of invite contributed talks at various workshops and conferences, co-organizer/convener of conferences/workshops, reviewer of proposals, reviewer of publications in peer-reviewed journals, student and postdoc adviser, science panel service roles.
- Lead DUNE Photon-Detector Calibration/Electronics/Production/Analysis Efforts 2015-2022.
- Lead NOvA oscillation analysis effort at ANL 2015-2019 at ANL.
- Led development of JUNO (Jiangmen Underground Neutrino Observatory) Experiment 2014-2015.
- LBNE R&D Coordinator (2013-2015).
- PI in LBNE photo-detection calibration and electronics design effort (2013-2015).
- PI in "Development of Wireless Data and Power Transfer Techniques" LDRD R&D project (2010-2012).
- Double Chooz Calibration co-convener (2010-2013).
- Double Chooz Analysis co-coordinator (2011-2013).
- Leader of NuMI neutrino analysis effort with MiniBooNE.
- PhD thesis work based on detection of low-energy neutrinos at KamLAND.
- Contributed to development of EXO Experiment.

Awards

- May 2020 PSE Employee of the Month: Program development category.
- The Gordon and Betty Moore Foundation Fundamental Physics Innovation Award from American Physics Society (to stimulate ideas on innovative ways in which to address pressing problems in fundamental physics), Lectureship Award, December 2019.
- Breakthrough Prize in Fundamental Physics for breakthrough results KamLAND Experiment (co-recipient), December 2015.
- Los Alamos National Laboratory Director's Postdoctoral Fellowship, 2009.
- Violin Family Foundation Research and Travel Support Award, 2008.
- The University of Alabama PhD Scholarship 1999-2004, with multiple Travel Grants.

Panel Participation

- DOE HEP 2018 BNL Institutional Review Panel, July 2018.
- DOE HEP 2018 University Comparative Review Panel, October - November 2017.
- DOE HEP 2017 University Comparative Review, Mail-in Reviewer, November 2016.
- Panel on Neutrinos and Society, Intensity Frontier Workshop, 25-27 April 2013, Argonne National Laboratory.

Recent Conference and Workshop Organization

- Co-organizer of the "NEUTRINO SYNERGIES: COSMOLOGY AND LABOATORY EXPERIMENTS" workshop, Argonne National Laboratory, March 2-4, 2020.
- Co-organizer of NOvA Collaboration Meeting at Argonne National Laboratory, June 1-4, 2016.
- Co-organizer of HEP Strategy Retreat, 11-12 January 2016, Argonne National Laboratory.
- Co-organizer of the Short-Baseline Neutrino Physics Workshop, co-organizer: 26-27 January 2016, University of Pittsburgh .

Postdoctoral Advisor(s)

Michael Shaevitz	Columbia University
Janet Conrad	Columbia University/M.I.T.

Graduate Advisor

Andreas Piepke	University of Alabama

Recent Advisees

Shiqi Yu, PhD Student	Currently Postdoctoral Fellow at Michigan State University
Guang Young, PhD Student	Currently Scientist at Stony LBNL
Sarah Mancina, Undergraduate	Currently PhD Candidate, U. Wisconsin