

TATJANA (MILETIC) MILENKOVIC

Chemistry and Physics Department
Arcadia University
450 S Easton Road, Glenside, PA 19038

Phone: 215 572 2128 (office)
267 237 0221 (cell)
e-mail: miletict@arcadia.edu

EDUCATION

Ph.D., Drexel University, Philadelphia, PA
Department of Physics, 2009

M.S., Drexel University, Philadelphia, PA
Department of Physics, 2003

B.S., University of Belgrade, Belgrade, Serbia
Department of Physics, 2000

TEACHING EXPERIENCE

Assistant Professor, August 2012 - present
Chemistry and Physics Department, Arcadia University, Glenside, PA

Visiting Professor, September 2009 - June 2012
Department of Physics and Astronomy, Rowan University, Glassboro, NJ

Teaching Assistant, 2001-2009
Department of Physics, Drexel University, Philadelphia, PA

Summary of teaching responsibilities:

- Taught various physics courses, from introductory, fundamental physics classes like Physics 101 to advanced courses, including Atomic Physics, Quantum Mechanics, Modern Physics, Engineering Mechanics, Advanced Physics Lab and Instrumentation Lab.
- Through these courses gained extensive experience and knowledge in teaching methods, laboratory equipment and electronic set up used in these labs that span all areas of physics, from introductory classical physics to contemporary physics.

RESEARCH INTERESTS

- Neutrino physics: measurement of neutrino oscillation parameters, solar neutrino physics
- Physics beyond Standard Model, dark matter search, nucleon decay and rare decays.

RESEARCH EXPERIENCE

Kamioka Liquid AntiNeutrino Detector (KamLAND)] collaborator June 2002 - October 2009

Double Chooz collaborator September 2009 - present

DarkSide collaborator April 2013 - present

Visiting Research Professor, Department of Physics, Drexel University, Philadelphia, September 2009 - present

I have gained my research experience by working on the KamLAND (Kamioka Liquid scintillator Anti-Neutrino Detector) experiment. I have been a member of KamLAND collaboration since May 2002. KamLAND is an international, mainly Japanese-American effort that involves over 100 scientists. It is a 1Kt liquid scintillator detector, built to study the neutrino oscillation phenomenon, one of the burning questions of elementary particle physics in the last decade.

Since September 2009, I have been a member of the Double Chooz Collaboration. The Double Chooz experiment's goal is to search for a non-vanishing value of the θ_{13} neutrino mixing angle. This is the last step to accomplish prior to moving towards a new era of precision measurements in the lepton sector. In addition, we will use the near detector to investigate the potential of neutrinos for monitoring the civil nuclear power plants. I am collaborating with a Drexel University group led by Dr.Charles Lane.

In April of 2013 I joined the DarkSide collaboration. This is an international affiliation of universities and labs seeking to directly detect dark matter in the form of weakly interacting massive particles (WIMPs). The DarkSide program will use several innovative techniques to positively identify Dark Matter signals and to understand and suppress background. I am also collaborating with a Temple University group led by Dr.Jeff Martoff.

My specific research activities are:

- Participated in the operation and maintenance of the KamLAND detector and Double Chooz detector.
- Wrote software to analyze MACRO - KamLAND backup front-end electronic data.
- Utilized the software for operating MACRO electronic and checked compatibility and absence of conflict with the primary front-end electronics system by acquiring and comparing Nsums (Photomultiplier tubes - PMTs hit information) from all PMT channels.
- Analyzed MACRO data in order to determine low energy background signals in the KamLAND Detector.
- Tested operation of MACRO electronic equipment on site.
- Collaborated in publications on neutrino oscillations.
- Developed software to gauge detection efficiency such as writing Neutron Monte Carlo simulation in order to estimate the distance energetic neutrons travel before thermalizing and justify the analysis cuts.

- Collaborated on the production and design of front end electronics for the Double Chooz far detector.
- Supervised students in the testing of front end electronics for near the Double Chooz detector. Funded by an NSF award.

AWARDS

- September 2010 - NSF Grant Awarded “Systems to Increase Neutrino Detection Precision with the Double Chooz Detectors”.
Subcontact with Drexel University, Dr. Charles Lane is Principal Investigator at Drexel, I am Principal Investigator at Arcadia University.
<http://www.nsf.gov/awardsearch/showAward.do?AwardNumber=1002427>

MEMBERSHIPS

- APS American Physical Society
- Drexel Sigma Xi Research Society chapter since summer 2008. Served as chapter secretary in 2009.

COMPUTER SKILLS

Operating Systems: Linux, Microsoft Windows

Software: C++, C, ROOT, MatLab, LaTeX

PUBLICATIONS IN REFEREED JOURNALS

- C. E. Aalseth, P. Agnes, A. Alton, *et al.*, [DarkSide Collaboration]
The DarkSide Multiton Detector for the Direct Dark Matter Search, *Advances in High Energy Physics*, vol. 2015, Article ID 541362, 8 pages, 2015. [doi:10.1155/2015/541362].
- Y. Abe, J. C. dos Anjos, J. C. Barriere, E. Baussan, I. Bekman, M. Bergevin, T. J. C. Bezerra and L. Bezrukov *et al.*, [Double Chooz Collaboration]
Ortho-positronium observation in the Double Chooz Experiment, *JHEP* **1410**, 32 (2014) [arXiv:1407.6913 [physics.ins-det]].
- T. I. Banks, S. J. Freedman, J. Wallig, N. Ybarrolaza, A. Gando, Y. Gando, H. Ikeda and K. Inoue *et al.*, [KamLAND Collaboration]
A compact ultra-clean system for deploying radioactive sources inside the KamLAND detector, *Nucl. Instrum. Meth. A* **769**, 88 (2014) [arXiv:1407.0413 [physics.ins-det]].
- Y. Abe *et al.* [Double Chooz Collaboration],
Improved measurements of the neutrino mixing angle θ_{13} with the Double Chooz detector, *JHEP* **1410**, 86 (2014) [arXiv:1406.7763 [hep-ex]].
- Y. Abe *et al.* [Double Chooz Collaboration],
Precision Muon Reconstruction in Double Chooz, *Nucl. Inst. Meth. Phys. Res. A* (2014) [arXiv:1405.6227 [physics.ins-det]].

- A. Gando *et al.* [KamLAND Collaboration],
7Be Solar Neutrino Measurement with KamLAND, arXiv:1405.6190 [hep-ex].
- Y. Abe *et al.* [Double Chooz Collaboration],
Background-independent measurement of θ_{13} in Double Chooz, Phys. Lett. B **735**, 51 (2014) [arXiv:1401.5981 [hep-ex]].
- G. Keefer *et al.* [KamLAND Collaboration],
Laboratory studies on the removal of radon-born lead from KamLANDs organic liquid scintillator, Nucl. Instrum. Meth. A **769**, 79 (2014) [arXiv:1312.0977 [physics.ins-det]].
- Y. Abe *et al.* [Double Chooz Collaboration],
First Measurement of θ_{13} from Delayed Neutron Capture on Hydrogen in the Double Chooz Experiment, Phys. Lett. B **723**, 66 (2013) [arXiv:1301.2948 [hep-ex]].
- Y. Abe *et al.* [Double Chooz Collaboration],
Direct Measurement of Backgrounds using Reactor-Off Data in Double Chooz, Phys. Rev. D **87**, 011102 (2013) [arXiv:1210.3748 [hep-ex]].
- Y. Abe *et al.* [Double Chooz Collaboration],
First Test of Lorentz Violation with a Reactor-based Antineutrino Experiment, Phys. Rev. D **86**, 112009 (2012) [arXiv:1209.5810 [hep-ex]].
- 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]].
- 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) [arXiv:1112.6353 [hep-ex]].
- A. Gando *et al.* [KamLAND Collaboration],
Partial radiogenic heat model for Earth revealed by geoneutrino measurements, Nature Geo. **4**, 647 (2011).
- S. Abe *et al.* [KamLAND Collaboration], Phys. Rev. C **84**, 035804 (2011) [arXiv:1106.0861 [hep-ex]].
- A. Gando, Y. Gando, K. Ichimura, H. Ikeda, K. Inoue, Y. Kibe, Y. Kishimoto and M. Koga *et al.*, Astrophys. J. **745**, 193 (2012) [arXiv:1105.3516 [astro-ph.HE]].
- S. Abe *et al.* [KamLAND Collaboration], Phys. Rev. C **81**, 025807 (2010) [arXiv:0907.0066 [hep-ex]].
- B. E. Berger *et al.* [KamLAND Collaboration], JINST **4**, P04017 (2009) [arXiv:0903.0441 [physics.ins-det]].
- S. Abe *et al.* [KamLAND Collaboration], Phys. Rev. Lett. **100**, 221803 (2008) [arXiv:0801.4589 [hep-ex]].
- T. Araki *et al.* [KamLAND Collaboration], Phys. Rev. Lett. **96**, 101802 (2006) [hep-ex/0512059].
- T. Araki, S. Enomoto, K. Furuno, Y. Gando, K. Ichimura, H. Ikeda, K. Inoue and Y. Kishimoto *et al.*, Nature **436**, 499 (2005).
- T. Araki *et al.* [KamLAND Collaboration], Phys. Rev. Lett. **94**, 081801 (2005) [hep-ex/0406035].
- K. Eguchi *et al.* [KamLAND Collaboration], Phys. Rev. Lett. **92**, 071301 (2004) [hep-ex/0310047].

- K. Eguchi *et al.* [KamLAND Collaboration], Phys. Rev. Lett. **90**, 021802 (2003) [hep-ex/0212021].