

MAYLY SANCHEZ

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RESEARCH EXPERTISE/INTEREST

Neutrino physics: Oscillations in long-baseline neutrino experiments, leading research on NOvA and DUNE. Measurement of CP violation and the neutrino mass hierarchy. New detector technologies for neutrinos. Large-Area Picosecond Photo-Detectors (LAPPD) in Gd-loaded water Cherenkov detectors, leading the ANNIE experiment.

POSITIONS HELD

Professor	Florida State University	2022-
Affiliate Professor	Iowa State University	2022-
Professor	Iowa State University	2018-2022
Associate Professor	Iowa State University	2013-2018
Assistant Professor	Iowa State University	2009-2013
Joint Appointment	Argonne National Laboratory	2009-2016
Assistant Physicist	Argonne National Laboratory	2007-2009
Postdoctoral Fellow	Harvard University	2003-2007

EDUCATION and TRAINING

Tufts University	Ph.D. , Physics	1996-2003
Tufts University	M.Sc. , Physics	1996-1998
Universidad de Los Andes, Venezuela	B.S. , Physics	1990-1995

HONORS and AWARDS

2022 Wyatt-Green Professor, Florida State University
2022 LAS Dean's Professor, Iowa State University
2020 APS Fellowship
2018 LAS Mid-Career Achievement in Research Award, Iowa State University
2016 Cassling Family Professor, Iowa State University
2016 Intensity Frontier Fellow, Fermi National Laboratory
2012 Presidential Early Career Award for Scientists and Engineers (PECASE)
2012 Official Recognition from the Office of the Governor of the State of Iowa

2012 Iowa State University Award for Early Achievement in Research
2011 NSF CAREER Award
2009 HENAAC Outstanding Technical Achievement Award

SELECTED RESEARCH EXPERIENCE

- Liaison/coordinator for the NOvA-T2K joint neutrino oscillation analysis (2019-).
- General Analysis Co-coordinator for the NOvA experiment (2015-2019). Responsible for all scientific output of the collaboration.
- Co-spokesperson for the Accelerator Neutrino Neutron Interaction Experiment (ANNIE) (2014-). Lead in executed Phase 1 (2015-2017). Lead PI in approved Phase 2 project (2018-2022).
- Co-convener of the Long Baseline Oscillations analysis group in DUNE (2016-2021).
- Deputy leader of the DUNE Far Detector Physics Performance group (2015-2016).
- Co-convener of the first flagship analysis (electron neutrino appearance) of the NOvA experiment (2012-2015). First results released in Summer 2015, co-author of the publication.
- Co-leader of the computing and infrastructure group for the NOvA experiment (2012-2014).
- Leader of the study the application of large-area fast photo-detectors on the next generation of water Cherenkov detectors (2011-2014).
- Co-leader of the calibration design of the large water Cherenkov detector for LBNE (2009-2012). Level III manager for this effort. Responsible for the Conceptual Design Report Calibration chapter.
- Leader of the offline software group for the NOvA experiment (2009-2012). Responsible for simulations and reconstruction for the experiment. Also responsible for computing infrastructure.
- Co-convener of the electron neutrino appearance analysis group in the MINOS experiment (2004-2009).
- Lead in the first analysis effort to observe electron neutrino appearance in the MINOS experiment. Co-authored the 2009 publication in *Phys. Rev. Lett.*
- Coordinator of the Batch Processing group in the MINOS experiment (2005-2007).
- Leader of the Data/MC Reconstruction Validation effort for MINOS (2005-2007).
- Oscillation analysis of atmospheric neutrinos in Soudan 2. Primary author of 2003 *Phys. Rev. D* paper confirming the discovery of oscillations in atmospheric neutrinos. Result cited in the PDG review.

SELECTED PROFESSIONAL EXPERIENCE

- Appointed member of the Particle Physics Project Prioritization Panel (P5).
- Appointed member of the High Energy Physics Advisory Panel (HEPAP) (2022-2025).
- Elected Member of the APS Division of Particle and Fields Executive Committee 2021-2023
- Liaison for Neutrino Frontier and Instrumentation Frontier for Snowmass 2020.
- Member of the Scientific Council for PRISMA+ at Johannes Gutenberg Universitat Mainz (Germany) (2019-).
- Member of the APS DPF Program Committee 2018-2020
- Member of International Advisory Committee for the International Conference on Neutrino Physics and Astrophysics (Neutrino 2018 and Neutrino 2020)
- Member of the FNAL Short Baseline Program Director's Review. Chair of the Detector Review Subcommittee (2015)

- Member of the Fermi National Laboratory Test Beam Committee (2014-2018)
- Member of the HEP Computing Topical Panel on Intensity Frontier for DOE (2013)
- Elected member of the NOvA Executive Committee by the Collaboration (since 2009)
- Elected member of the MINOS Executive Committee by the Institutional Board (2011-2015)
- Elected member of the Fermilab User's Executive Committee (UEC) (2009-2011)

SELECTED RECENT TALKS

- **The Accelerator Neutrino Neutron Interaction Experiment (ANNIE)** (invited plenary talk), Talk at 55th Fermilab Annual Users' Meeting 13-17 June 2022, Batavia, IL.
- **The Accelerator Neutrino Neutron Interaction Experiment (ANNIE)** (invited parallel talk), Talk at 40th International Conference on High Energy Physics (ICHEP 2020), 28 July – 6 August 2020, Prague (Virtual).
- **NOvA Results and Prospects** (invited plenary talk), Talk at XXVII International Conference on Neutrino Physics and Astrophysics (Neutrino 2018), 4-9 June 2018, Heidelberg, Germany.
- **Using Accelerators to Study Neutrinos** (invited plenary review talk), 38th International Conference of High Energy Physics (ICHEP) 2016, Chicago August 8, 2016.
- **Using Fast Photosensors in the Next Generation Neutrino Detectors** (invited parallel talk), XIV International Conference on Topics in Astroparticle and Underground Physics (TAUP 2015), Torino, Italy, September 8, 2015.
- **Results and Prospects from the NOvA Experiment** (invited plenary talk), 16th International Workshop on Neutrino Factories and Future Neutrino Facilities (NuFact15), Rio de Janeiro, Brazil, August 11, 2015.
- **ANNIE: The Accelerator Neutrino Neutron Interaction Experiment** (invited parallel talk), 16th International Workshop on Neutrino Factories and Future Neutrino Facilities (NuFact15), Rio de Janeiro, Brazil, August 11, 2015.

SELECTED REFEREED PAPERS

- **Measurement of Beam-Correlated Background Neutrons from the Fermilab Booster Neutrino Beam in ANNIE Phase-I.** ANNIE Collaboration (with A.R. Back et. al.), JINST 15 P03011 (2020).
- **Long-baseline Neutrino Oscillation Physics Potential of the DUNE Experiment.** DUNE Collaboration (with B. Abi et. al.), Eur. Phys. J. C 80, 978 (2020).
- **First Measurement of Neutrino Oscillation Parameters using Neutrinos and Antineutrinos by NOvA.** NOvA Collaboration (with M. Acero et al.), Phys. Rev. Lett. 123, 151803 (2019).
- **New constraints on oscillation parameters from ν_e appearance and ν_μ disappearance in the NOvA experiment.** NOvA Collaboration (with M. Acero et al.). Phys. Rev. D. 98 no. 3, 032012 (2018).
- **Constraints on Oscillation Parameters from ν_e Appearance and ν_μ Disappearance in NOvA.** NOvA Collaboration (with P. Adamson et. al.), Phys. Rev. Lett. 118, 231801 (2017).
- **Measurement of the Neutrino Mixing Angle θ_{23} in NOvA.** NOvA Collaboration (with P. Adamson et. al.), Phys. Rev. Lett. 118, 151802 (2017).
- **First measurement of electron neutrino appearance in NOvA,** NOvA Collaboration (with P. Adamson et. al.), Phys. Rev. Lett. 116, 151806 (2016).
- **First measurement of muon neutrino disappearance in NOvA,** NOvA Collaboration (with P. Adamson et. al.), Phys. Rev. D. 93, 051104 (R) (2016).