Sean Bartz

sean.bartz@indstate.edu
(612) 751-1979

Indiana State University
600 Chestnut Street
Terre Haute, IN 47809

Education

PhD Physics, University of Minnesota 2014
Meson Spectra from a Dynamical Three-Field Model of AdS/QCD

BS Physics and Mathematics, summa cum laude, Xavier University 2008

Professional Appointments

Assistant Professor, Indiana State University 2018-present
Visiting Assistant Professor, Macalester College 2014-2018

Fellowships

University of Minnesota Doctoral Dissertation Fellow 2013-2014
U.S. Department of Energy Office of Science Graduate Fellow 2010-2013

Grants

Career Readiness Faculty Summer Stipend 2019
Indiana State University Career Services
Honors Rocket Science for Intro Physics

One Tweet, One Percent 2018
Mindlin Foundation
$4,000 to become certified in high-power rocketry, to bring rocketry to ISU students

Wallace Scholarly Activities Fund 2015
Macalester College
$4,500 for undergraduate research student

Beltmann Fund Research Grant 2015, 2016
Macalester College
$4,500 for undergraduate research student

Refereed Publications

Dynamical AdS/Yang-Mills Model 2018
S. Bartz, A. Dhumuntarao, J. Kapusta
Phys. Rev. D 98, 026019

Chiral phase transition at finite chemical potential in 2+1-flavor soft-wall AdS/QCD 2018
S. Bartz, T. Jacobson
Phys. Rev. C 97 (4), 044908

Chiral phase transition and meson melting in a soft-wall AdS/QCD model 2016
S. Bartz, T. Jacobson
Phys. Rev. D 94, 075022

Dynamical Three-Field AdS/QCD Model 2014
S. Bartz, J. Kapusta
Phys. Rev. D 90, 074034

Pseudoscalar Mass Spectrum in a Soft-Wall Model of AdS/QCD 2011
T. Kelley, **S. Bartz**, J. Kapusta
Phys. Rev. D 83, 016002

Invited Talks

Butler University Physics Colloquium September 27, 2019
"Particle Zoo, Melted Nuclei, and Frozen Stars"

University of Wisconsin - La Crosse Physics Seminar October 11, 2017
"Melting the nucleus in five dimensions"

University of Minnesota Nuclear Theory Seminar October 21, 2016
"Chiral phase transition in soft-wall AdS/QCD"

Brookhaven National Laboratory Nuclear Theory Seminar June 23, 2014
"Dynamical Three-Field AdS/QCD Model"

Contributed Talks

5th Joint Meeting of the APS Division of Nuclear Physics and the Physical Society of Japan October 2018
Waikoloa, Hawai'i
"Chemical Potential Effects on Chiral Phase Transition in AdS/QCD"

Critical Point and Onset of Deconfinement August 2017
Stony Brook, New York
"Chiral phase diagram in soft-wall AdS/QCD"
*PoS(CPOD2017)*064

American Physical Society, Division of Nuclear Physics October 2016
Vancouver, British Columbia
"Quark-gluon plasma effects on hadrons in AdS/QCD"

American Physical Society, April Meeting — April 2016
Salt Lake City, Utah
"Meson Spectra from a Three-Field Model of AdS/QCD"

Conference on the Intersection of Particle and Nuclear Physics — June 2015
Vail, Colorado
"Light meson spectra from dynamical three-field AdS/QCD"

American Physical Society, April Meeting — April 2014
Savannah, Georgia
"Meson Spectra from a Three-Field Model of AdS/QCD"

American Physical Society, April Meeting — April 2013
Denver, Colorado
"A Potential for Soft-Wall AdS/QCD"

Hot Quarks 2012 — October 2012
Copamarina, Puerto Rico
"Meson Spectra and Thermodynamics in Soft-Wall AdS/QCD"
2013 *J. Phys.: Conf. Ser.* 446 012019

7th International Workshop on Chiral Dynamics — August 2012
Jefferson National Accelerator Facility, Newport News, Virginia
"Three-Field Potential for Soft-Wall AdS/QCD"
PoS CD12 (2013) 029

Light Cone 2012 — July 2012
Krakow, Poland
"Three-Field Potential for Soft-Wall AdS/QCD"
Acta Phys. Polon. Supp. 6 (2013) 13-18

Conference on the Intersection of Particle and Nuclear Physics — June 2012
St. Petersburg, Florida
"Three-Field Potential for Soft-Wall AdS/QCD"
AIP Conf. Proc. 1560, 456 (2013).

Eleventh Workshop on Non-Perturbative Quantum Chromodynamics — June 2011
Paris, France
"Pions and Strange Mesons in a Modified Soft-Wall Model of AdS/QCD"

American Physical Society, April Meeting — April 2011
Anaheim, California
"Pseudoscalar Mass Spectrum in a Soft-Wall Model of AdS/QCD"

Poster Presentations

American Association of Physics Teachers Summer Meeting — July 2017
Cincinnati, Ohio
"Relaxation Method Modeling of Non-ideal Parallel Plate Capacitor"

Quark Matter 2017 — February 2017
Chicago, Illinois
"Chiral phase transition in a soft-wall model of AdS/QCD"

Workshop on QCD Under eXtreme Conditions (XQCD) — June 2014
Stony Brook University, New York
"Meson spectra from holographic QCD"

American Physical Society, Division of Plasma Physics — November 2007
Orlando, Florida
"A smart filtering method for space-charge dominated beam simulations"

Teaching Experience

Assistant Professor, Indiana State University — 2018-present
General Physics I
Modern Physics I
Modern Physics I Lab
Modern Physics II
Modern Physics II Lab

Visiting Assistant Professor, Macalester College — 2014-2018
Principles of Physics I
Principles of Physics II
Modern Physics
Statistical Mechanics
Electromagnetic Theory
Classical Mechanics
Independent Project

Teaching Assistant, University of Minnesota — 2008-2010
Introductory Physics for Pre-Medicine I Lab
Introductory College Physics II Lab

Student Mentoring

Summer undergraduate research students, 10-week program, unless noted

Beixi Hao — 2019
Machine learning for phase transitions in nuclear matter. SURE summer

research program at ISU. Accepted to present poster at American Physical Society meeting.

Theodore Jacobson 2016-2017
Chiral phase transition of quark-gluon plasma in AdS/QCD. Co-authored two publications. Awarded travel grant to present poster at DNP annual meeting in 2016 and 2017. Supervised independent study.

Elias Lilleskov 2015
Deconfinement of quark matter in AdS/CFT. Awarded travel grant to present poster at DNP annual meeting.

Joshua Rollag 2015
Scalar meson-glueball mixing in AdS/QCD. Poster accepted for DNP annual meeting.

Aditya Dhumuntarao 2015-2018
Glueballs in AdS/QCD. University of Minnesota REU, informal advising and collaboration. Co-authored paper.

Academic Service

Service to Department

Society of Physics Students advisor	2018-2020
Instructor of physics hiring committee	2019
Undergraduate Research Committee	2019
Physics Curriculum Committee	2019

Service to College or University

Academic Advisor, Indiana Space Grant Consortium (NASA)	2020-present
Presidential Scholars interviewer	2019
Scribe, Mid-Course Interview, Macalester College	2015-2017
Allies Project Ally, Macalester College	2015-2018
Non Tenure-Track faculty orientation panel, Macalester College	2015
Graduate Education Committee, Minnesota School of Physics	2009-2011

Service to Profession

Abstract Reviewer, DNP Conference Experience for Undergraduates	2016-2017
Grant Pre-application Reviewer, Mindlin Foundation	2018
Referee, *Physical Review D*	2017-2019
Referee, *Physical Review C*	2016
Referee, *Physics Letters B*	2010

Outreach

Moderator, Minnesota High School Science Bowl	2017-2018

Scientific Judge, Minnesota High School Science Bowl 2015-2016
Scientific Demonstrator, Tennis2College Program 2015-2017

Honors And Awards

Travel Award, APS Forum for Graduate Student Affairs 2014
U.S. Delegate, Lindau Nobel Laureate Meeting, U.S. Dept. of Energy 2012
Outstanding Physics Teaching Assistant, University of Minnesota 2009

Professional Memberships

American Association of Physics Teachers 2017-2020
American Physical Society 2011-2020
Partnership for Integration of Computation into Undergraduate Physics 2016-2020
Anacapa Society 2015-2020

Professional Development

National Association of Rocketry high power Level 1 certification 2019
American Association of Physics Teachers New Faculty Workshop 2018
Teaching Computation in the Sciences Using MATLAB: Workshop 2016
Working group leader

Partnership for Integration of Computation into Undergraduate Physics 2016
Summer Faculty Development Workshop

Midstates Consortium Summer Workshop for Early Career Success 2014

Peer-Reviewed Teaching Materials

Relaxation Method for a real parallel-plate capacitor September 2016
S. Bartz and J. Heyman
Computational and laboratory exercise published in the SERC collection