KARA DION HOFFMAN

PROFESSOR OF PHYSICS

The University of Maryland
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EMPLOYMENT

Professor, University of Maryland, College Park, 2015-present

Associate Professor, University of Maryland, College Park, 2010-2015

Assistant Professor, University of Maryland, College Park, 2004-2010

Research Associate, University of Chicago, Enrico Fermi Institute, 2001-2004

Fellow, CERN, Organisation Européenne pour la Recherche Nucléaire, Geneva, Switzerland, EP Division, 1998-2001

Research Assistant, Purdue University at Fermi National Accelerator Laboratory, Batavia, IL, 1994-1998

Teaching Assistant, Purdue University, 1992-1994

EDUCATION

Ph.D., High Energy Physics, Purdue University, 1998 (advisor: D. Bortoletto)
M.S., Physics, Purdue University, 1994
B.S., Physics, University of Kentucky, 1992

RESEARCH

Askaryan Radio Array, 2010-present
IceCube Neutrino Observatory at the South Pole, 2004-present
Askaryan Under-Ice Radio Array, 2005-2009
Muon Collaboration, developing muon acceleration technologies, 2001-2004
CDF-II, Collider Detector at Fermilab, top quark physics and b-vertexing techniques, 2001-2004
LEP Higgs Working Group, combining LEP results to increase statistical power of Higgs boson limits, 1999-2001
OPAL detector at LEP, Charged Higgs searches, 1998-2001
CDF Run I, exotic particle searches and silicon vertex detector development, 1993-1998

TEACHING

Physics 106, Light, Perception, Photography, and Visual Phenomena, Spring 2015

Physics 115, Inquiry Into Physics, Fall 2005, Fall 2006, Fall 2008, Fall 2009, Fall 2010

Physics 276, Experimental Physics II: Electricity and Magnetism, Spring 2012, Fall 2012, Fall 2013, Spring 2014, Fall 2014

Physics 273, Introduction to Physics: Waves, Spring 2007, Spring 2008, Spring 2009

Physics 420, Principles of Modern Physics, Spring 2005, Fall 2007, Spring 2010

GRADUATE STUDENTS AND POSTDOCS

Alexander R. Olivas, postdoctoral research associate, IceCube, 2005-2010
Andrew (Phil) Roth, Ph.D. 2009
Warren Huelsnitz, Ph.D. 2010
Brian Christy, Ph.D. 2011
Kevin Meagher, Ph.D. 2012
Michael Richman, Ph.D. 2015
David Greene, 2011-present
Ryan Maunu, advisor, 2012-present
Ming Song, advisor, 2014-present
Elizabeth Friedman, 2015-present

GRANTS

Co-PI, NSF Grant, "Neutrino Physics at the University of Maryland", 09/01/14-09/01/17, $1,568,300

Co-Principal Investigator, "Neutrino Physics at the University of Maryland", NSF Grant, 09/08/11-09/07/14, $1,519,978.00

Principal Investigator, NSF Grant ANT-1002483,"Collaborative Research: MRI-R2 Instrument Development of the Askaryan Radio Array, a Large-scale Radio Cherenkov Detector at the South Pole", 04/10-04/13, $1,477,748

Principal Investigator, NSF Grant PHY-0847658, "CAREER Towards a GZK Neutrino Detector at the South Pole", 07/09-07/14, $499,900

Co-PI, NSF Grant PHY-0757759, "Particle Astrophysics at the University of Maryland", 06/01/08-05/30/11, $2,370,000

Co-PI, NSF Grant PHY-0502709, "Particle Astrophysics with the South Pole IceCube Neutrino Observatory" , 09/15/05-08/31/08, $751,610

DEPARTMENTAL SERVICE

Director, Center for Experimental Fundamental Physics 2011-2015
Committee for Appointments, Promotions, and Tenure, 2010-2012
Salary Advisory Committee, 2010-2012 (second term)
Physics Chair Review Committee, 2010
Theoretical Condensed Matter Physics Faculty Search Committee, 2010
Salary Advisory Committee, 2008-2010
Lecture Demonstration Director search committee, 2008
Physics Council, 2005-2007

Ph.D. Advisory committees: Junjie Zhu (2004), Derek Hullinger (2006), John Pretz (2006), Luis Reyes (2007), Ralf Ehrlich (2008), Andrew (Phil) Roth (2009) (chair), Warren Huelsnitz (2010) (chair), Christopher Stark (2010), Edmund Hodges-Kluck (2011) (astronomy, dean's representative), Brian Christy (2011) (chair), Peter Redl (2011), Kevin Meagher (2012) (chair), Eric Kuo (2013), Megan DeCesar (2013) (astronomy, dean's representative), William McConville (2014), Michael Richman (2015) (chair), Robert Hellauer (2015), Sylvia Zhu (2015), Rodrigo Herrera Camus (2015) (astronomy, dean's representative)

UNIVERSITY SERVICE

Elected to the University Senate, 2015-2018 term
Banneker Key Scholarship reviewer, 2008
Senate Academic Affairs Committee, 2005-2007

PROFESSIONAL SERVICE

Chair, Joint Space Institute (JSI) conference committee for November 2014 conference entitled "Multimessenger Astronomy in the Era of PeV Neutrinos".

Chair, Local Organizing Committee for the 2014 Acoustic and Radio EeV Neutrino Detection Activities Workshop

Member of the American Physical Society, the Division of Particles and Fields and the Division of Astrophysics

Member at Large of the Executive Committee of the Division of Particles and Fields, Elected Term: Jan 2010-Dec 2012

Member of the Local Organizing Committee, Chicago Linear Collider Workshop, January 7-9, 2002, Chicago, Illinois

HONORS

Most Distinguished Alumna Award, Purdue University Physics Department, 2013
Appointed Fellow of the University of Maryland/NASA Goddard Space Flight Center Joint Space Institute, 2011
Research and Scholarship Award (RASA), 2010
Richard M. Farrell Distinguished Faculty Fellowship, 2009
NSF Career Award, 2009
CMPS Board of Visitors Distinguished Junior Faculty Award, 2007
DPF Snowmass Fellow, 2001
CERN Fellow, 1998
George W. Tautfest Memorial Award, awarded to the Ph.D. recipient showing outstanding promise in high energy physics, 1998
David Ross Fellow, Purdue Research Foundation, 1995-1997
Purdue University Fellow, 1992-1993
Merry Lewis Pence Award for the outstanding senior physics major, 1992
Phi Beta Kappa, 1992

CONFERENCE TALKS

Invited Plenary talk at the 2015 American Astronomical Society Meeting, Seattle, WA, January 2015

Invited talk at the 20th Particles and Nuclei International Conference, Hamburg, Germany August 2014

Invited talk VIII International Workshop on the Interconnection between Particle Physics and Cosmology, Leon, Mexico, June 2014

Invited talk at the 6th International Conference on Acoustic and Radio EeV Neutrino Detection Activities, Annapolis, MD, June 2014

Invited talk at the 288th Symposium of the International Astronomical Union in Beijing, China, August 2012

Talk at the Scientific Committee on Antarctic Research (SCAR) Open Science Conference in Portland, Oregon, July 2012

Invited talk at the "1st International Conference on New Frontiers in Physics" (ICFP 2012) Crete, Greece, June 2012

Talk at the Joint Space Institute mini symposium, April 2012

Two contributed talks at the 32nd International Cosmic Ray Conference in Beijing, China, August 2011

Invited talk at the "Using Astronomy to Teach Physics" Workshop at the University of Nebraska, Lincoln, July 2011I

nvited plenary talk at Acoustic and Radio EeV Neutrino Detection Activities (ARENA 2010), Nantes, France, June 2010

Invited plenary talk at Particle Physics in the LHC Era, HEP2010, Valparaiso, Chile, January 2010

Invited parallel talk at the 2009 Meeting of the Division of Particles and Fields of the APS, Detroit, MI, July 2009

Invited plenary talk, 3rd International Workshop on the Interconnection between Particle Physics and Cosmology, Norman, OK, May 2009

Invited plenary talk, Shedding Light on Dark Matter, College Park, MD, April 2009

Plenary talk, NEUTEL, XIII International Workshop on "Neutrino Telescopes", Venice, Italy, March 2009

Invited talk at the 2008 APS April Meeting, St. Louis, MO

Invited talk at the 2007 SLAC Summer Institute on Dark Matter: From the Cosmos to the Laboratory, July 2007, Stanford Linear Accelerator Center, Menlo Park, CA

Two talks at the 6^{th} Rencontres du Vietnam, Challenges in Particle Astrophysics, August 6 - 12, 2006, Hanoi, Vietnam

Talk at the International Conference on Acoustic and Radio EeV Neutrino Activities (ARENA 2006), 28-30 June, 2006, Newcastle, UK

Talk at the Eighth International Workshop on Topics in Astroparticle and Underground Physics, September 5-9, 2003, Seattle, WA

Talk at the International Europhysics Conference on HEP, July 17-23, 2003, Aachen, Germany

Talk at NuFact03, June 5-11, 2003, New York, NY

Talk at Snowmass 2001, The Future of Particle Physics, Snowmass, CO

Talk at the XXXth International Conference on High Energy Physics, July 27-August 2, 2000, Osaka, Japan

Talk at the International Europhysics Conference on HEP, August 19-26, 1997, Jerusalem, Israel

Contributed Talk at the 1997 Joint Meeting of the APS/AAPT, 18-21 April 1997, Washington, D.C.

Contributed Talk at the 1995 Joint Meeting of the APS/AAPT, 19 April 1995, Washington, D.C.

INVITED SEMINARS AND COLLOQUIA

Yale University Physics Department Colloquium, March 2015
University of Maryland Physics Department Colloquium, May 2014
University of Oregon High Energy Physics Seminar, May 2013
University of Florida physics department colloquium, November 2012
University of Florida high energy physics seminar, November 2012
Seminar at the Naval Research Laboratory, May 2012
Western Kentucky University Physics and Astronomy Department Colloquium, November 2011
George Washington University Physics Department Colloquium, February 2011
University of Melbourne High Energy Physics Seminar, Victoria, Australia, January 2011
Sunday Science Lecture, Amundsen-Scott South Pole Station, Antarctica, January 2011
University of Massachusetts, high energy physics seminar, April 2010
Syracuse University, Physics Department Colloquium, November 2009
University of Maryland, Physics Department Colloquium, September 2009
Los Alamos National Laboratory, Nuclear physics seminar, June 2009
Boston University, High energy physics seminar, April 2009
University of Maryland, Astronomy Department Colloquium, November 2008
University of Delaware Physics Department Colloquium, March 2008
University of Kentucky Physics and Astronomy Department Colloquium, October 2006
University of Chicago high energy physics seminar, May 2006
Purdue University Physics Department Colloquium, April 2006
University of Maryland high energy physics seminar, April 2004
University of California at Davis, Physics Department Colloquium, March 2004
University of California at Davis, high energy physics seminar, March 2004
Florida State University high energy physics seminar, February 2004
University of Minnesota high energy physics seminar, February 2004
University of Maryland high energy physics seminar, October 2003
University of Chicago high energy physics seminar, June 2003
Purdue University High Energy Theory Seminar, April 2001
Notre Dame University high energy physics Seminar, March 2001
University of Louisville Physics Department Colloquium, March 2001
Argonne National Laboratory Beams and Applications Division Seminar, March 2001
Princeton University high energy physics seminar, September 2000
Rutgers University high energy physics seminar, September 2000
Lawrence Berkeley National Laboratory Research Progress Meeting, September 2000
University of Illinois at Urbana-Champaign High Energy Theoretical/Experimental Physics Seminar, December 1997

SELECTED RECENT PUBLICATIONS

"Search for Prompt Neutrino Emission from Gamma-Ray Bursts with IceCube", M. G. Aartsen *et al.* [IceCube Collaboration], Astrophys. J. **805**, no. 1, L5 (2015)

"First Constraints on the Ultra-High Energy Neutrino Flux from a Prototype Station of the Askaryan Radio Array", P. Allison *et al.* [ARA Collaboration], Astropart. Phys. **70**, 62 (2015)

"Evidence for High-Energy Extraterrestrial Neutrinos at the IceCube Detector", M. G. Aartsen *et al.* [IceCube Collaboration] Science **342**, no. 6161, 1242856 (2013)

"First observation of PeV-energy neutrinos with IceCube", R. Abbasi *et al.* [IceCube Collaboration], M. G. Aartsen *et al.* [IceCube Collaboration]. Phys. Rev. Lett. **111**, 021103 (2013)

"An absence of neutrinos associated with cosmic-ray acceleration in γ-ray bursts" R. Abbasi *et al.* [IceCube Collaboration] Nature **484**, 351 (2012)

"Search for Relativistic Magnetic Monopoles with IceCube" Phys. Rev. D **87**, no. 2, 022001 (2013)

"Design and Initial Performance of the Askaryan Radio Array Prototype EeV Neutrino Detector at the South Pole" P. Allison *et al.*. Astropart. Phys. **35**, 457 (2012)

"Measurement of the atmospheric neutrino energy spectrum from 100 GeV to 400 TeV with IceCube", R. U. Abbasi [IceCube Collaboration] Phys. Rev. D **83**, 012001 (2011) [arXiv:1010.3980v2 [astro-ph.HE]]

"Search for a Lorentz-violating sidereal signal with atmospheric neutrinos in IceCube", Phys. Rev. D **82**, 112003 (2010) [arXiv:1010.4096v2 [astro-ph.HE]]

"Search for muon neutrinos from Gamma-Ray Bursts with the IceCube neutrino telescope", R. U. Abbasi [IceCube Collaboration] Astrophys. J. **710**, 346 (2010) [arXiv:0907.2227 [astro-ph.HE]]

"High Energy Neutrino Telescopes" **Invited review article.*, K. D. Hoffman, New J. Phys. **11**, 055006 (2009) [arXiv:0812.3809 [astro-ph]]

"Origin and evolution of cosmic accelerators - the unique discovery potential of an UHE neutrino telescope: Astronomy Decadal Survey (2010-2020) Science White Paper", Editors: P. Chen and K. D. Hoffman, arXiv:0902.3288 [astro-ph.CO]

see http://www.slac.stanford.edu/spires/ for a complete, up-to-date listing