Kael HANSON, Ph. D.

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Professional Preparation

University of Michigan	Ann Arbor, MI	Physics	B.S. (1991)
University of Michigan	Ann Arbor, MI	Physics	Ph.D. (2000)
University of Pennsylvania	Philadelphia, PA	Postdoctoral Researcher	2000 – 2002

Appointments

2014 –	Professor of Physics and Director Wisconsin IceCube Particle Astrophysics Center University of Wisconsin, Madison, WI
2009 – 2014	Chargé de cours, Université Libre de Bruxelles, Brussels, Belgium
2005 – 2009	Associate Instrumentation Innovator University of Wisconsin, Madison, WI
2003 – 2005	Assistant Instrumentation Innovator University of Wisconsin, Madison, WI
2002 – 2003	Assistant Researcher University of Wisconsin, Madison, WI

Products

i) Selected publications

a. *Observation of High-Energy Astrophysical Neutrinos in Three Years of IceCube Data.* M.G. Aartsen et al. (IceCube Collaboration). Phys. Rev. Lett. **113** (2014) 101101.

b. *IceCube Sensitivity for Low-Energy Neutrinos from Nearby Supernovae.* R. Abbasi, et al. (IceCube Collaboration), Astronomy and Astrophysics **535** (2011) A109

c. *Calibration and characterization of the IceCube photomultiplier tube*. R. Abbasi et al. (IceCube Collaboration). Nuclear Instruments and Methods in Physics Research **A618** (2010) 139-152.

d. *The IceCube Data Acquisition System: Signal Capture, Digitization, and Timestamping.* R. Abbasi et al. (IceCube Collaboration) Nuclear Instruments and Methods in Physics Research **A601** 294-316 (2009)

e. *On the detection of neutrinos from solar flares using pion-decay photons to provide a time window template*. G. de Wasseige, K. Hanson, N. van Eijndhoven, P. Evenson, K.-L. Klein. arXiv:1505.05837.

ii) Other publications

a. *Performance of two Askaryan Radio Array stations and first results in the search for ultra-high energy neutrinos*. P. Allison et al. (ARA Collaboration). arXiv:1507.08991 (submitted to PRD)

b. *On the feasibility of RADAR detection of high-energy neutrino-induced showers in ice.* Krijn D. De Vries, Kael Hanson, Thomas Meures. Astroparticle Physics **60** (2015) 25-31.

c. *A bi-directional fixed-latency clock distribution system*. Y. Yang, A. Ó Murchadha, T. Meures, M. Korntheuer, and K. Hanson. Nuclear Instruments and Methods in Physics Research **A732** (2013) 497-500.
d. *R&D on triggerless acquisition for next-generation neutrino experiments.* J.E. Campagne, et al., J. Instr**. 6** (2011) C01081

Synergistic Activities

- Co-founder of HK Physics, LLC, Madison, WI. An optics instrumentation business with international clients in industrial and defense sectors.
- Academic mentor (UW Madison, Department of Physics) for two high school students, Aileen Zhai and Tyler Trickle, as part of Madison Metropolitan School District's Science Research Intern program (Summer 2015).
- Academic mentor (Université Libre de Bruxelles, Brussels Belgium) for two US undergraduate students, Anna Christenson and Rami Jubara, in the NSF International Research Experiences for Students (Summer 2014).
- Instructor / organizer of astroparticle physics section of Journées Jeunes Chercheurs (2010, Angers, France), a week-long winter school for European physics graduate students.
- Featured guest speaker on Wisconsin Public Radio Ideas Network (2007)

List of Collaborators

- The IceCube Collaboration: 311 authors at 45 institutions. See arXiv:1507.04005
- The ARA Collaboration: 66 authors, 16 institutions. See arXiv:1507.08991

Graduate Advisors and Postdoctoral Sponsors

- Thesis Advisor: Prof. M. J. Longo, Department of Physics, University of Michigan, Ann Arbor.
- Postdoctoral Advisor: Prof. D. Cowen (formerly U Penn, now Penn State University).

Thesis Advisor and Postgraduate-Scholar Sponsor

- Postdoctoral-Scholar Sponsor to:
    - Alberto Marrotta (ULB, 2010-2011)
    - Mark Dierckxsens (ULB, 2010-2012)
    - Aongus Ó Murchadha (ULB, 2012-2014)
- PhD Thesis Advisor to:
    - Sabrina Bechet (ULB, 2012)
    - Thomas Meures (ULB, 2014)
    - David Heereman (ULB, 2015)
    - Elisa Pinat (ULB, 2016 expected)