Francis Halzen

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Appointments at the University of Wisconsin–Madison

Vilas Research Professor and Gregory Breit Professor

Publications (selected from more than 1,000)

Testing QCD in the Hadroproduction of Real and Virtual Photons (with D. Scott), Phys. Rev. Lett. **40**, 1117 (1978)

Soft Hard Scattering in the TeV Range (with T. Gaisser), Phys. Rev. Lett. **54**, 1754 (1985)

High Energy Neutrino Detection in Deep Polar Ice (with J.G. Learned), *Proceedings of the 5th Int'l Symposium on Very High Energy Cosmic Ray Interactions*, Lodz, Poland (1988)

Observation of Muons Using the Polar Ice Cap as a Cerenkov Detector (with D.M. Lowder, T. Miller, R. Morse, P.B. Price and A. Westphal), Nature **353**, 331 (1991)

Delta *r* Beyond One Loop (with B. Kniehl), Nucl. Phys. B **353**, 567 (1991)

Particle Astrophysics with High Energy Neutrinos (with T.K. Gaisser and T. Stanev), Physics Reports **258**, 173 (1995)

Ultratransparent Antarctic Ice as a Supernova Detector (with J. Jacobsen and E. Zas), Phys. Rev. D **53**, 7359 (1996)

Tau Neutrino Appearance with a 1000 Megaparsec Baseline (with D. Saltzberg), Phys. Rev. Lett. **81**, 4305 (1998)

Observation of high-energy neutrinos using Cherenkov detectors embedded deep in Antarctic ice (with the AMANDA collaboration), Nature **410**, 441 (2001)

An Absence of Neutrinos Associated with Cosmic Acceleration in Gamma Ray Bursts (with the IceCube Collaboration), Nature **484**, 351 (2012).

Search for dark matter annihilations in the Sun with the 79-string IceCube detector (with the IceCube Collaboration), Phys. Rev. Lett. **110**, 131302 (2013)

First observation of PeV-energy neutrinos with IceCube (with the IceCube Collaboration), Phys. Rev. Lett. **111,** 021103 (2013)

Evidence for high-energy extraterrestrial neutrinos at the IceCube Detector (IceCube Collaboration, Science **342,** 6161, 1242856 (2013)

Multimessenger observations of a flaring blazar coincident with high-energy neutrino IceCube-170922A (IceCube Collaboration, Fermi-LAT collaboration, MAGIC collaboration et al.), Science **361,** 6398, eaat1378 (2018)

Neutrino emission from the direction of the blazar TXS 0506+056 prior to the IceCube-170922A alert, Science **361,** 6398, 147 (2018)

Evidence for neutrino emission from the nearby active galaxy NGC 1068, Science **378** 6619, (2022)

Observation of high-energy neutrinos from the Galactic plane, Science **380** 6652 (2023)

Recent Honors

American Physical Society Medal for Exceptional Achievement in Research (2026)

Doctor Honoris Causa, Simon Fraser University (2025)

Member of the National Academy of Sciences (2024)

Doctor Honoris Causa, Ruhr University Bochum (2022)

Homi Bhabha Prize and Medal, IUPAP (2021)

Bruno Rossi Prize of the American Astronomical Society (2021)

Yodh Prize of IUPAP (2019)

Pontecorvo Prize (2018)

Member Academia Europeae (2018)

Julius Wess Award (2017)

Doctor Honoris Causa, Southern Methodist University (2017)

Member Royal National Academy, Belgium (2016)

Bethe lectures, Cornell (2016)

Brinson lectures, University of Chicago (2016)

Balzan Prize (2015)

European Physical Society Prize for Particle Astrophysics and Cosmology (2015)

International Francqui Professor, VUB–ULB–UGent–UMons–UA–ULg–KULeuven, Belgium (2014)

Smithsonian American Ingenuity Award for Physical Sciences (2014)

Doctor Honoris Causa, Ghent University, Belgium (2013)

Physics World Breakthrough of the Year Award for making the first observation of cosmic neutrinos (2013)

APS Highlights of the Year (2013)

University of Wisconsin–Madison Hilldale Award (2013)

Affiliated Distinguished Professor, Technische Universität München, Germany (2012)

Synergistic Activities

- IceCube principal investigator
- Service on advisory committees includes:
  - SNO and Telescope Array and the Auger-Upgrade experiments
  - Max Planck Institutes in Heidelberg and Munich
  - ICRR of the University of Tokyo

- US Particle Physics Prioritization Panel
- ApPEC particle astrophysics advisory panel in Europe
- Member Fermilab PAC
- Chair HEP@VUB Brussels Scientific Advisory Committee
- Member SNOLAB Scientific Advisory Committee
- Member KIT Karlsruhe Scientific Advisory Committee