ASU Department of Physics
Arizona State University

COLLOQUIUM

Thursday, October 7th, 2021

4:00 PM – 5:00 PM, Virtual

https://asu.zoom.us/j/86960690591

Ice Cube: Cosmic Neutrinos and Multimessenger Astronomy

Professor Francis Halzen
University of Wisconsin-Madison

Abstract:

IceCube detects more than 100,000 neutrinos per year in the GeV to 10 PeV energy range. Among those, we have isolated a flux of high-energy neutrinos of cosmic origin, with an energy density in the extreme universe similar to that of high-energy photons and cosmic rays. We identified their first source: on September 22, 2017, following an IceCube neutrino alert, observations by other astronomical telescopes pinpointed a flaring active galaxy, powered by a supermassive black hole, as the source of a cosmic neutrino with an energy of 290 TeV. We will review recent progress in measuring the cosmic neutrino spectrum and in identifying its origin.

Biography:

Francis Halzen is a theoretician studying problems at the interface of particle physics, astrophysics and cosmology. He graduated from the University of Louvain with a PhD in 1969, then his Agrégé de l'Enseignement Supérieur in 1972. Since 1972, he has been a professor at the University of Wisconsin-Madison and the Principal Investigator on the AMANDA experiment, a first-generation neutrino telescope at the South Pole. He published many early papers on cosmic ray anomalies and quark matter, relations between particle physics and cosmic rays, particles from supernovae and on muon production in atmospheric gamma-ray showers. He has served on various advisory committees, including those for the SNO, Telescope Array and Auger-upgrade experiments, the Max Planck Institutes in Heidelberg and Munich, the ICRR at the University of Tokyo, the US Particle Physics Prioritization Panel and the ApPEC particle astrophysics advisory panel in Europed.

Host: Prof. Cecilia Lunardini

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