**PARTICLE PHYSICS SEMINAR SERIES**

# Neutrino emission from the blazar TXS 0506+056

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Tuesday, October 23

4:00 pm - Rm 415 NSH

A high-energy neutrino event detected by IceCube on 22 September 2017 was coincident in direction and time with a gamma-ray flare from the blazar TXS 0506+056. Prompted by this association, we investigated 9.5 years of IceCube neutrino observations to search for excess emission at the position of the blazar. We find an excess of high-energy neutrino events with respect to atmospheric backgrounds at that position between September 2014 and March 2015. Allowing for time-variable flux, this constitutes 3.5$\sigma$ evidence for neutrino emission from the direction of TXS 0506+056, independent of and prior to the 2017 flaring episode. This suggests that blazars are the first identifiable sources of the high-energy astrophysical neutrino flux.

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