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Multimessenger studies of blazars

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The IceCube Collaboration has published results on a neutrino flux significantly in excess of the atmospheric background. Due to low atmospheric background at PeV energies, the highest energy events are the most likely ones to be of extraterrestrial origin. We use broadband spectra in the IceCube integration period to calculate the maximum expected number of neutrinos assuming a pion photoproduction model. We show that blazars as a class are capable of explaining the first two observed neutrino events at PeV energies. For the third event at PeV energies we find a flaring blazar in positional and temporal agreement. The energy output of PKS B1424-418 alone can explain the neutrino event, indicative of a physical association.

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