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The IceCube Realtime Program

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In 2013, the IceCube collaboration announced the detection of diffuse high-energy astrophysical neutrino flux. The origin of these particles is still unknown as there is still no identification of a source at the 5-sigma level. To answer this question, IceCube releases realtime alerts triggering follow-up observations in multiple wavelengths looking for electromagnetic counterparts to individual neutrinos. One of these alerts permitted in 2017 the evidence of the association between the neutrino event IC160427A with the flaring blazar TXS 0506+056 at a 3-sigma level. This work presents an overview of the IceCube Realtime Program with a brief exposition of possible future improvements to overcome issues with systematic errors, such as incomplete knowledge of the Antarctic ice.

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Session Classification: Student talks