

Contribution ID: 826

Type: Talk

Citizen science to enhance sub-GeV neutrino searches in IceCube

Friday 18 July 2025 13:50 (15 minutes)

Machine learning has become a vital part of analysis in modern neutrino astronomy, and many recent discoveries would not be possible without it. This approach, however, is limited by the quality of available training data. Located at the South Pole, the IceCube Neutrino Observatory is a neutrino detector sensitive to astrophysical neutrinos from GeV to PeV energies, with ongoing efforts to push the sensitivity down to 100 MeV for neutrinos from transient events. IceCube is dominated by massive backgrounds, detecting more than 10 billion atmospheric muons for each astrophysical neutrino, and machine learning is a powerful tool to reduce this large background rate. However, undetected outliers in labelled training data negatively affect the final performance of machine learning algorithms. Citizen scientists can help to quantify and qualify outliers in IceCube data to improve the detection of such outliers. In this contribution, we present the ongoing effort of utilising citizen science to improve a machine-learning-based event selection targeting sub-GeV astrophysical neutrinos.

Collaboration(s)

IceCube

 Authors:
 WILBERTS DEWASSEIGE, Gwenhaël (UCLouvain); MYHR, Per

 Presenter:
 WILBERTS DEWASSEIGE, Gwenhaël (UCLouvain)

 Session Classification:
 OE

Track Classification: Outreach & Education