



Contribution ID: 12

Type: **Talk**

Air shower reconstruction using a Graph Neural Network for the IceAct telescopes

Tuesday, 1 February 2022 14:30 (30 minutes)

The IceAct telescopes are prototype Imaging Air Cherenkov telescopes (IACTs) situated at the IceCube Neutrino Observatory at the geographic South Pole. The telescopes camera consist of 61 silicon photomultipliers (SiPMs) with a hexagonal light guide glued to each SiPM. The IceAct telescopes measure the electromagnetic air shower component of cosmic rays in the atmosphere, which is complementary to the muonic component measured by the IceCube in-ice detector and the particle footprint measured at the surface by Ice-Top. The shape of the events and the number of SiPMs hit per event within the IceAct telescopes, and the possibility of combining information from different detector components, makes the IceAct data a perfect candidate for a reconstruction of particle type and energy using a graph neural network (gnn). In contrast to other neural networks, gnns do not need a fixed structure between the nodes, the number nodes can differ between events and the connection between the nodes can be defined individually for each pair of nodes. A Monte Carlo study for a first gnn reconstruction of air shower events with the IceAct telescopes will be presented.

Type of Contribution

talk

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Session Classification: Tuesday