

- What is this contribution about?
 - Investigating the reconstruction benefits of adding 1 vertically polarized radio antenna with each planned IceCube Gen2 DOM

- Why is it relevant / interesting?
 - It could significantly improve angular reconstruction of high-energy cascade events
 - It would be the first in-ice validation of an Askaryan signal simultaneously observed in the optical channel.
 - It is interesting to see optical and RF performance for the same event side by side.

- What have we done?
 - Simulated electron neutrinos/antineutrinos at 6, 10, 30, and 100 PeV for Gen2 optical Cherenkov and Askaryan radio detection.
 - Analyzed a case study on one 30 PeV, charged current, electron neutrino event to perform angular reconstruction with optical data only and with optical+radio data.
 - Determine the relative number of cascade events that also see an RF signal.

- What is the result?
 - The relative number of events that also record an RF signal ranges from 11% at 6 PeV (Glashow Resonance) to 84% at 30 PeV.
 - Using radio data improved the angular resolution from an estimate with 10° of uncertainty to within 1° .
 - The rates and performance depends on the assumptions made, eg choice of antenna.