



Contribution ID: 143

Type: **Contributed talk in mini symposium**

## **High-energy neutrino emission from GRMHD accretion flows onto supermassive black holes**

*Monday, 11 December 2023 14:30 (12 minutes)*

Accretion flows around supermassive black holes can emit the high energy neutrino and may significantly contribute to the IceCube neutrinos. The global structure of the magnetized accretion flows potentially affect the neutrino SEDs, while it has not yet been studied. We, therefore, carry out the calculation of SEDs of high energy neutrinos by using three dimensional general relativistic magnetohydrodynamic (GRMHD) simulation data of a radiatively inefficient accretion flow onto a supermassive black hole, assuming the pp collisions processes. The time evolution of the cosmic-ray protons SEDs are calculated by assuming the turbulent acceleration and the effects of compressions. We have found that the global structure effect, i.e., the superposition of the various neutrino SEDs emitted at different positions, appears as neutrino SEDs flatter than 1-zone models. The flatter neutrino SEDs will be consistent with the diffuse neutrino SEDs observed by IceCube.

**Primary author:** KAWASHIMA, Tomohisa

**Co-author:** ASANO, Katsuaki (ICRR, The University of Tokyo)

**Presenter:** KAWASHIMA, Tomohisa

**Session Classification:** Astroparticle