

Kazu Akiyama (NRAO/MIT)

First Horizon-scale images of Black Holes: Very Neartime Forecast

Does the black hole literally appear as a dark object in the Universe if we can photograph this extreme object predicted by Einstein's general relativity? It is an intriguing question that even non-astronomers would have. We finally have an excellent opportunity to observationally address this opened question by observing the Galactic center Sgr A* and the nearby radio galaxy M87 with the Event Horizon Telescope (EHT), an Earth-sized radio telescope observing at 1.3 mm (230 GHz). The EHT has extended its array to nearly the Earth diameter including a critical addition of sensitive stations such ALMA since 2017. Recent active developments of our new imaging techniques for the EHT, coupled with many progress in theoretical modeling using GRMHD simulations, expect that the first horizon-scale images of black holes would be obtained with EHT 2017 observations. In this talk, I will introduce the EHT, imaging techniques developed under my fellowship program and my weather forecast for the results of the first full-array EHT observations of Sgr A* and M87.