

GRMHD SIMULATIONS OF JET FORMATION WITH APPLICATION TO THE EHT ANALYSIS

Tuesday, 9 July 2019 11:50 (30 minutes)

Over the last two decades, general relativistic magnetohydrodynamic simulations (GRMHD) have drawn a robust theoretical picture of jet formation in low-luminosity sources. The observations by the Event Horizon Telescope now allow to test these theories at an unprecedented level. I will take this opportunity to review the state-of-the-art in 3D numerical source models. Nowadays, adaptive mesh refinement simulations resolve the black hole engine as well as the jet outflow over several decades. To demonstrate how results compare between different codes, I will also report on the first comprehensive GRMHD code comparison effort of black hole accretion in which nine groups have participated. As an example application, first conclusions drawn from the GRMHD simulation library which was applied to the 2017 EHT observations will be discussed. In particular the jet power derived from GRMHD simulations proved to be very constraining on the source parameters of M87.

Primary author: PORTH, Oliver (University of Amsterdam, Anton Pannekoek Institute for Astronomy)

Presenter: PORTH, Oliver (University of Amsterdam, Anton Pannekoek Institute for Astronomy)

Session Classification: Formation and propagation of relativistic outflows

Track Classification: Formation and propagation of relativistic outflows