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Towards Understanding Black Hole Accretion and Jet Launching: Linking Simulations to EHT Images
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The Event Horizon Telescope (EHT) has produced the first image of the 1.3 mm-wavelength emission around the black hole shadow at the heart of M87. The hot plasma in the accretion flow around M87's central black hole illuminates the spacetime, and the flow's magnetic field extracts energy from the black hole to launch famous relativistic jet which is prominent in VLBI images at longer wavelengths. General relativistic magnetohydrodynamic (GRMHD) simulations are a powerful tool for studying the accretion flow and jet in M87 and Sgr A*. I will discuss the library of these simulations used by the EHT collaboration to constrain the properties of the black hole and emitting plasma in M87. Linking total intensity and polarimetric images from these simulations to VLBI images at multiple wavelengths will constrain the physics of the jet launching region and reveal the geometry and dynamics of the magnetic field near the event horizon.