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What matter(s) at the Event Horizon? Radio Interferometry at highest resolution — •S. Britzen[1], A. Zensus[1], C. Fendt[2], A. Eckart[3,1], and V. Karas[4] — [1]MPI Radioastronomie, Bonn — [2]MPI Astronomie, Heidelberg — [3]I. Physikalisches Institut, Universität zu Köln — [4]Astronomical Institute of the Academy of Sciences, Prague

M87 is the central elliptical galaxy in the Virgo cluster and at a distance of 16.7 Mpc the second closest active black hole to our galaxy. The bright jet and counter-jet have been studied intensively in all wavelength regimes (radio to TeV). Most detailed information for this show-case jet has been obtained in the radio regime with increasing observing frequencies and resolution in recent years. This source is a prime object to be studied in exquisite detail with the high-angular resolution radio imaging provided by the Event Horizon Telescope project (EHT) observations since it promises to allow a direct view on the jet launching process itself.

I will present our most recent results based on an analysis of 16 years of radio interferometric monitoring data which reveal for the first time details concerning the physical processes of the jet loading of M87. I will discuss the implications for the jet launching mechanism. In addition, I will present the current status of the EHT-observations to image the photon sphere around the event horizon of M87 (and Sgr A*) and possible tests of General Relativity (GR).