

Talk at Splinter Meeting

Splinter B

BRIGHT, HOT, AND POLARIZED: THE EXTREME UNIVERSE OF
RADIOASTRON

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High-resolution observations with RadioAstron, reaching an angular resolution of $\leq 20 \mu\text{as}$, probe extragalactic jets on scales smaller than a thousand gravitational radii, which yields the most detailed view on the internal structure, formation, propagation and emission mechanism of these flows. This opportunity is exploited in the RadioAstron key science programs (KSP) on structure and physics of compact jets in AGN. These programs are aimed at studying the innermost regions of the flow where a transition from Poynting-flux dominated to kinetic-flux dominated regime is suspected to occur, releasing copious amounts of broad-band continuum emission and prompting formation of a collimated relativistic outflow in which shocks and plasma instability determine the subsequent propagation and evolution. Focusing on this region of extragalactic jets, RadioAstron observations reveal brightness temperatures in excess of 10^{14} K, extremely rich internal structure of the flow and highly ordered magnetic fields on linear scales of $\leq 10^3$ gravitational radii. A brief review of these and several other results from the RadioAstron AGN KSP observations will be presented here.