

RadioAstron survey completed: AGN cores at unprecedented angular resolution

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The Space Very Long Baseline Interferometer RadioAstron has performed a survey of 248 radio-loud active galactic nuclei at 18, 6, and 1.3 cm at projected spacings up to 350,000 km. Significant detections at space-ground baselines were found for 164 AGNs. Formal resolution as high as 11 microarcsec has been achieved. Apparent brightness temperature up to about or higher than 10^{14} K was found in cores of observed active galactic nuclei. These measurements challenge our understanding of the non-thermal continuum emission in the vicinity of supermassive black holes. Physical implications of these findings will be discussed. While the survey was dedicated to total intensity measurements, we have also discovered that fractional linearly polarized correlated flux density significantly increases with long SVLBI projected spacings. This suggests the presence of ultra-compact regions with ordered magnetic field, most probably within the core of those quasars. Considerations regarding future Space VLBI missions will be also presented.