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The Space VLBI Mission RadioAstron: an overview and results

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The RadioAstron Space VLBI mission utilized the 10-m radio telescope on board the dedicated Spektr-R spacecraft to observe cosmic radio sources with an unprecedented angular resolution at 92, 18, 6 and 1.3 cm in total and polarized light. The longest baseline of the space-ground interferometer was about 350 000 km. It operated in 2011-2019 together with 58 largest ground radio telescopes. Resolution as high as 8 and 11 microarcsec has been achieved for mega-masers and quasars observed at 1.3 cm, respectively. Successful results have been obtained in all areas of its science program including active galactic nuclei, pulsars and scattering, galactic and extragalactic masers, gravitational redshift measurements. An overview of the mission and its science results will be presented, lessons learned and future prospects will be discussed.