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Astro Space Center
RadioAstron Newsletter
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One year has passed since the birth of the Spektr-R 10-meter orbiting radio telescope

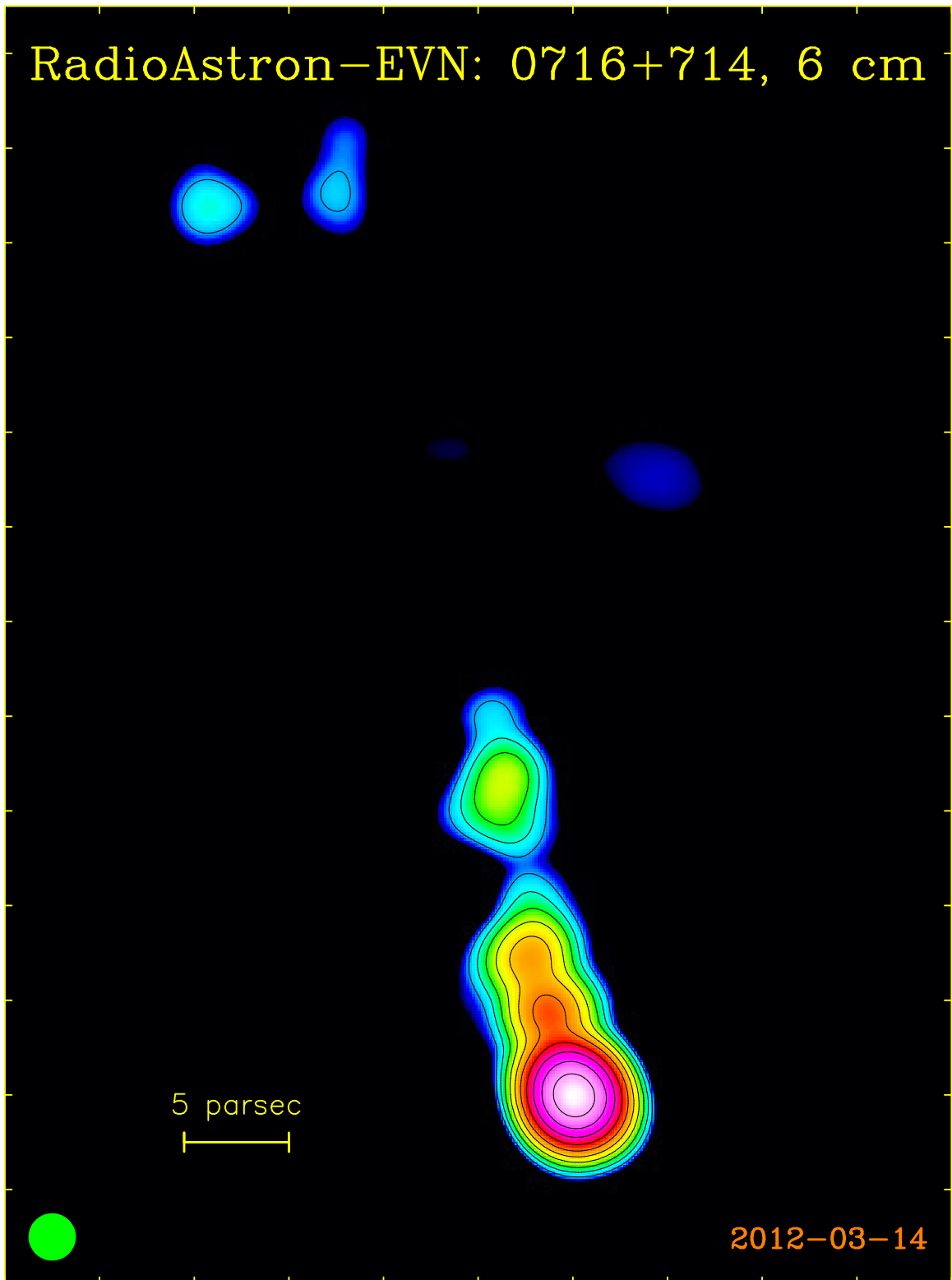
About one year ago, on September 27, 2011, the space radio telescope Spektr-R has registered the first light from the supernova remnant Cassiopeia A. Congratulations to all involved! We are pleased to note that since then the RadioAstron radio interferometer has proven its stability and operability at all four available wave bands of 92, 18, 6, and 1.3 cm. New science results were obtained within the three main areas of the RadioAstron Early Science program: pulsars, galactic masers, and active galactic nuclei. Interferometric signals were successfully detected for the interferometer baselines up to 20 Earth diameters for pulsar observations and up to 7 Earth diameters for quasars.

First RadioAstron-EVN image of the active galaxy 0716+714!

The international RadioAstron AGN early science program team of researchers has produced the first RadioAstron-EVN image of the rapidly variable active galaxy 0716+714 at 6.2 cm (see Figure). Data of about 24 hours of observations from about 10 largest ground radio telescopes from Europe, Russia, and China together with the 10-meter space Spektr-R were used in the analysis. Correlated emission of 0716+714 was detected up to 5.2 Earth diameters. Apparent parameters of the core were estimated. The jet base width is measured to be about 70 microarcseconds or 0.3 parsec, its brightness temperature - about 2×10^{12} K which agrees with the model of incoherent synchrotron emission of relativistic electrons with Doppler boosting. We note that these parameters were measured at an epoch of low activity state of the BL Lacertae object 0716+714.

With best regards,
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Space VLBI radio image of the BL Lacertae object 0716+714 produced on the basis of about 24 hours of RadioAstron-EVN observations at 6.2 cm. The observations were performed on March 14-15, 2012, within the early science program on active galactic nuclei. The image is reconstructed with a 0.5 mas circular beam. Contours are plotted starting from the 0.25 mJy/beam level with $\times 2$ steps, the image peak value is 0.43 Jy/beam.