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Phase-referencing measurements of positional frequency-dependent shifts in ultra-compact AGN cores.

R. Azulay[1,2], A. P. Lobanov[2], E. Ros[2], J. C. Guirado[1,3], and R. W. Porcas[2]

[1] Departamento de Astronomía y Astrofísica, Universidad de Valencia, Dr. Moliner 50, E-46100 Burjasot, Valencia, Spain
[2] Max-Planck-Institut für Radioastronomie, Auf dem Hügel 69, D-53121 Bonn, Germany
[3] Observatorio Astronómico, Universidad de Valencia, Parque Científico, Catedrático José Beltrán 2, E-46980 Paterna, Valencia, Spain

Abstract

Accurate alignment of the optical reference frame with the VLBI based International Celestial Reference Frame (ICRF) requires good understanding of the positional discrepancies of the reference objects used for the alignment. The compactness of the ICRF objects requires relative astrometry for measuring the frequency-dependent core shifts, however, there are no established methods and approaches for such measurements. We have designed a project aimed at testing several potential methods for core shift measurements using relative astrometry. For that purpose, we have used phase-referencing VLBA observations at 5 and 15 GHz in a sample of 10 compact, high declination radio sources. These observations will provide crucial input for devising an optimal approach for the radio-optical reference frame aligment. (See poster).

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