High-resolution VLBI Study of A Southern Blazar OV-236

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Abstract:

OV-236 (PKS 1921-293) is one of the most compact radio sources known and has one of the highest brightness temperatures of >7 x 10^{12} K measured in the source rest frame. It is an extremely variable source with a very flat radio spectrum over 3 orders of magnitude. Because of its southern declination, however, this source, unlike other strong radio sources, has rarely been studied in depth with VLBI.

Since 1994, we have carried out the most extensive VLBI imaging observations of this nearby (z=0.352) bright southern blazar with the ground VLBA and (space) VSOP at all the VLBI frequencies from 1.6 to 86 GHz. Here, we will present results from such a high-resolution VLBI study of OV-236. The superluminal (~3c) motion has been detected and, the jet emission is found to be strongly curved with a change in the position angle as large as ~70°. In the innermost (< 1 pc) region, there are two equally compact components whose relative position over about 6.5 yr remains unchanged, in spite of the dramatic variation of the one component's flux density. Some possible explanations are investigated. We will also present our analysis of the spectral index at different phases of the flux density variation based on the single-dish total intensity monitoring.