

S10c Superluminal motion in a compact steep spectrum radio source 3C 138

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We present the results of 5 GHz VLBI observations of a compact steep spectrum source 3C 138. The data are consistent with the western end being the location of the central activity. The observed offset between different frequencies in the central region of 3C 138 can be accounted for by a frequency dependent shift of the synchrotron self-absorbed core. Our new measurements confirm the existence of a superluminal motion, but its apparent velocity of $3.3c$ is three times slower than the reported one. This value is consistent with the absence of parsec-scale counter-jet emission in the inner region, but seems still too high to allow the overall counter-jet to be seen in terms of Doppler boosting of an intrinsically identical jet. Either an interaction of jet with central dense medium, or an intrinsically asymmetrical jet must be invoked to reconcile the detected superluminal speed with the observed large scale asymmetry in 3C 138.