

3C 84 and a solution to the "Doppler crisis"?

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The inner parsecs of the radio core of 3C 84 is a complex region with multiple bright regions that are moving at various speeds and in many directions. Nevertheless, the apparent motions of these components are typically subluminal and yet 3C 84 is one of the brightest Gamma-ray sources, having also been detected at TeV energies, leading to the question of how such high energies can be created without significant Doppler boosting. We performed a wavelet kinematic analysis of 3C 84 using high resolution 7 mm VLBA data. We find behaviour that is reminiscent of a Gamma-ray burst, with faster traveling shocks catching up with slower moving shocks before hitting the external medium, correlated with high energy flaring. We propose this mechanism as a solution to the "Doppler crisis". We find tentative evidence that the mechanism producing the GeV and TeV flaring could be magnetic reconnections.