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Cristiana Spingola: The radio VLBI view of the outstanding gamma-ray flare of the lensed blazar PKS 1830-211

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We present results from a dense VLBI monitoring of the brightest lensed blazar PKS 1830-211 (z=2.5). Time delays are a primary manifestation of gravitational lensing and they provide one of the most powerful methods to spatially locate the multi-band emitting regions in AGN at high redshift: a difference between the measured radio and the gamma-ray time delays directly implies that the two regions are separated in the source plane. We monitored PKS 1830-211 for three months at 15, 24 and 43 GHz with the VLBA during its most extreme gamma-ray flare detected by the Fermi-LAT. We do not find evidence for a knot ejection at sub-mas resolution and we obtain a new precise VLBI-derived time delay measurement. Additional single-dish OVRO observations confirm our result and reveal an additional value for the time delay, likely related to the central lensed image. We discuss the implication of our findings and prospects for this kind of study with the future time-domain surveys.