Two classes of radio flares in the blazar PKS 0420−014 J. F. Zhou1,2, X. Y. Hong1,2, D. R. Jiang1,2, and T. Venturi3 1Shanghai Astronomical Observatory, No. 80, Nandan Road, Shanghai 200030, China 2National Astronomical Observatories, CAS, China 3Istituto di Radioastronomia del CNR, Via Gobetti 101, I-40129 Bologna, Italy

abstract The two 5GHz VLBI (Very Long Baseline Interferometry) observations (1996 June and 1997 November) presented in this paper, combined with several former VLBI observations at 8.4GHz and 5GHz, suggest that the radio flares of the blazar PKS 0420−014 can be divided into two classes according to their geometric origins in 5 or 8.4GHz VLBI maps and the properties of light curves. One class of flares, which we call core flares, originate from the core. Core flares have large lags between the light curves at different frequencies, and will probably lead to the ejection of new jet components. The other class of flares, which we call jet flares, come from jet components. Jet flares vary simultaneously at different wavelengths, and may due to the Doppler boosting effect of rotating knots moving along a helical jet. The radio flare in 1991, accompanied by a simultaneous gamma-ray flare, was identified as a core flare.