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VSOP Observations of the TeV gamma-ray source Mkn501

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One of the features of VSOP observations is the ability to make contemporaneous, matched-resolution images at different frequencies in order to produce spectral index maps. We have combined VSOP observations made at 4.8 GHz on 1998 April 7 and 1.6 GHz on 1998 April 8 to make such a map of the variable X-ray and TeV gamma-ray source Mkn 501. The spectral index map reveals considerably more information than a single frequency total intensity image, and shows significant spectral variation along and across the milli-arcsecond scale jet. We interpret this in terms of models for the jet involving an inner fast spine and slower outer shear layer.