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Potential gravitational lensing on a CMB cosmic string candidate

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The theory of gravitational lensing on straight segments of a single cosmic string (CS) located perpendicular to the line of sight has been studied recently in detail. However, more realistic models necessarily have to include the inclinations and bends of the string. Besides, the recent analysis of observational data on the search for gravitational-lens candidates shows a large number of pairs that could be explained by the complex geometry of the string. We describe here a way to threat both inclination and bending to perform image analysis and constrain the parameters of CS candidates. In this talk we also discuss the results obtained from observations of a galaxy pair SDSSJ110429. This pair is the brightest in the statistically significant chain of possible gravitational lens images situated along the expected location of the CSc-1 – the CMB CS candidate. We have obtained high-quality spectra of each component of a pair. We fitted the image by a model of both bended and inclined string and performed the statistical analysis of spectrum to confirm the lensing hypothesis. The hypothesis of interacting galaxies is also considered.

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