

The Observations of Gravitational Lens Systems at Maidanak Observatory

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Since 1997, the international program of observations of gravitational lens systems (GLS) is carried out by joint efforts of Tashkent, Moscow and Kharkov observational groups (Maidanak collaboration). Maidanak observatory (Uzbekistan) has an excellent seeing conditions and 1.5 meter telescope with perfect optics of almost diffraction quality which has been installed by Moscow University at 1990. During 1997-2003 the huge set of observational data of GLS was gathered for Q2237+0305, SBS1520+530, SBS0909+532, PG1115+080, H1413+117, RXJ0921+4528, UM673, B1422+231. The photometric processing of the 2001-2003 data observations Q2237+0305 was made with new methods of the image reconstruction (Moscow group). The image reconstruction technique for objects with point sources superimposed on a smooth background is presented. The modified Tikhonov regularization algorithm was adopted for specific purposes of gravitational lens image reconstruction. The technique allows splitting a complex image into the numerical foreground galaxy and quasar components and deriving photometric characteristics of a gravitational lens system from individual images which are under the photometric treatment. The technique is applied to images of the gravitational lens QSO2237+0305, known for its compact spatial structure with foreground lensing galaxy. The variations of brightness and colors of the components Q2237+0305 in VRI spectral bands are discussed and compared with the results of the another groups.