

[KGC-11] Lensing Cross Sections for galaxy-lens with Shear

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For the cosmic statistical study with gravitational lenses, it is necessary to carefully take into account the magnification bias effects of the observed multiple-images. We investigated detailed variations of lensing cross section corresponding to various magnification ratios of multiple-images in the case of singular isothermal sphere with external perturbing shear. This galaxy-lens model shows similar lensing features like elliptical galaxy-lens. By using our unique inverse mapping equation for this lens model, we efficiently calculated the variation of lensing cross sections as a function of the strength of the external shear. Here, we present our calculation results for the cases of 2-images with different magnification ratios, 3-images, and 4-images.

[KGC-12] Spectroscopic Survey of Infrared Sources in the North Ecliptic Pole

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We report the spectroscopic observation of the IR sources in the AKARI NEP-Wide survey field. Using MMT Hectospec and WIYN Hydra instruments, we have obtained more than 1500 spectra of sources in the NEP field. These sources range from star forming galaxies, AGNs, early-type galaxies, and other various interesting targets. These redshifts are being used for deriving scientific results over a wide area of topics, including properties of early-type galaxies in cluster region, mid-infrared selection of AGNs, spectral energy distribution templates of IR sources, and the luminosity function and star formation rate density evolution of galaxies at $z < 1$. This research was supported by the CEOU program, a Creative Initiative Program of MESTLine 7