

## [ $\mathbb{F}$ GC-22] Unveiling the Lens Galaxy of FLS 1718+59: A Galaxy-Galaxy Gravitational Lens System

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We analyze a newly discovered galaxy-galaxy scale gravitational lens system, FLS 1718+59 in the *Spitzer* First Look Survey (FLS) field. A background galaxy ( $z = 0.245$ ) is severely distorted by a foreground galaxy ( $z = 0.08$ ), via gravitational lensing. We analyze this system by several methods, including surface brightness fitting (*Galfit* and *Ellipse*), gravitational lens modeling (*gravlens*), and spectral energy distribution fitting (*Magphys*). From *Galfit* and *Ellipse* we measure properties of the lens galaxy, such as the effective radius and the average surface brightness inside it, the ellipticity, and the position angle. *gravlens* gives us the total mass inside the Einstein radius ( $R_{\text{Ein}}$ ), and *Magphys* provides us an estimate of the stellar mass inside  $R_{\text{Ein}}$ . By comparing these obtained parameters, we confirm that the lens galaxy is an elliptical galaxy on the Fundamental Plane, and calculate the stellar mass function inside  $R_{\text{Ein}}$ , and discuss the implications of the results regarding the initial mass function.

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## [ $\mathbb{F}$ GC-23] Galaxy Clusters in ELAIS-N1 field

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Galaxy clusters, the largest gravitationally bound systems, are an important means to place constraints on cosmological models. Moreover, they are excellent places to test galaxy evolution models in connection to the environments. To this day, massive clusters have been found unexpectedly (Kang & Im 2009, Durret et al. 2011, Tashikawa et al. 2012) and evolution of galaxies in cluster have been still controversial (Elbaz et al. 2007, Cooper et al. 2008, Tran et al. 2009). Finding galaxy cluster candidates in a wide, deep imaging survey data will enable us to solve the such issues of modern extragalactic astronomy. We have used multi-wavelength data from the UKIRT Infrared Deep Sky Survey Deep Extragalactic Survey (UKIDSS DXS/J and K bands), *Spitzer* Wise-area InfraRed Extragalactic survey (SWIRE/two mid-infrared bands), the Panoramic Survey Telescope and Rapid Response System (PAN-STARRS/ g, r, i, z, y bands) and Infrared Medium-deep Survey (IMS/J band). We report new candidates of galaxy clusters and properties of their member galaxies in one of the wide and deep survey fields ELAIS-N1, European Large Area ISO Survey North1, covering sky area of  $8.75\text{deg}^2$ .