[구ST-01] Tidal Tails of Galactic Globular Clusters

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A stellar system orbiting its host galaxy eventually experiences a directional loss of its contents through combined dynamical processes of evaporation and tidal stripping by the host galaxy. The two dimensional shape of the tidal tails of globular clusters is known to be one of methods to trace dynamical history of the globular clusters. We investigate the shape of the tidal tails of galactic globular clusters (GGCs) based on Sloan Digital Sky Survey. 16 out of ~150 GGCs have been observed in SDSS DR6. Using SDSS-DoPHOT package we obtain new gri photometry of point sources in SDSS images covering ~3 times of tidal radius of each GC. We investigate the existence of tidal tails for 9 GGCs with deep photometry. We find the tidal tails of 6 GCs including M2, M5, M13, M15, M92, and NGC 5466 while there is no clear signature of tidal tail for M3, M53 and NGC 5053.

[구ST-02] CONSTRAINTS ON GALACTIC MODELS FROM MICROLENSING OPTICAL DEPTHS

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We estimate the optical depths using the Galactic bulge and disk models from COBE-DIRBE, 2MASS, and SDSS survey, and compare them with the recent results of microlensing surveys such as MACHO, OGLE-II, and EROS-2. We use two different methods. We compare firstly the average optical depth gradients along the Galactic latitude b from observations with predicted one from various models. We also compare the optical depths of OGLE-II and MACHO in each field with those of models. From these analyses, we find that the Galactic models of 2MASS and Han & Gould well reproduce the optical depth profiles for all observations, and models including SDSS disk model provide relatively higher $\chi 2$ values than others. However, optical depth values in each field and the average optical depth gradients from observations are uncertain, since the number of microlensing events from monitoring RCGs in the recent microlensing surveys is still small. So, the analysis of the optical depth based on much larger microlensing events data should be preformed, and the microlensing observation toward much closer to the Galactic center regions is required to constrain the Galactic model.