

for specific, generic models. Broad absorption line quasar, which comprise about 10 percent of radio-quiet quasar, show deep absorption troughs in their highly ionized permitted lines. The broad absorption lines are associated with outflowing gas outside the broad emission line region. The polarization of both the transmitted and the reflected radiation is computed for simple kinematic models of the outflow and the observed integrated polarization in the absorption line troughs is found to be typically  $\sim 10$  percent. An equatorial flow model gives a large degree of polarization ( $\sim 0.15$ ) parallel to the symmetry axis in the absorption trough for the doublet transition  $J=1/2 \rightarrow 1/2$   $3/2$  and the polarization ( $\sim 0.05$ ) perpendicular to the jet axis from a bipolar flow model and the polarized flux is concentrated to the blue side of line profile. Polarization observation of quasar emission lines promise to be a powerful diagnostic of the kinematics of gas in the central pc of a quasar.

### **Is The Bulge of a Barred Galaxy NGC 936 Triaxial?**

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We have examined bulge morphology of an early type barred galaxy NGC936, using V-band surface photometry based on the Kiso Schmidt plates, together with R and I-band images taken with the FORD CCD attached on the DAO 1.8m telescope. Triaxiality in bulge of disk galaxies is one of the main issues of morphology and dynamics of galaxies. Photometrically, triaxial bulges can be identified by the isophotal twists and/or misalignment between bulge and disk major axes (Stark 1977). Komendy (1982) suggested that triaxial bulge are preferentially occurred in barred galaxies, owing to their dynamical interactions with the prominent bars. Bertola et al. (1991) reported that triaxial bulges are not rare in nearby non-barred galaxies from photometry alone, due to triaxial bars. The bulge of NGC936 was thought to be triaxial by Bertola et al. (1989), but Kent(1989) suggested an oblate spheroid. Our preliminary analysis of the Kiso plates, by means of an ellipse fitting and a new two-dimensional profile decomposition technique, supports the assumption of the oblate spheroid. We will discuss the results of a detailed analysis of the bulge morphology of NGC936 from new CCD observations.

### **Contributions to the Cosmic Ray Flux Near $10^{19}$ eV: Cluster of Galaxies**

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Cosmological numerical simulation have shown that the accretion shocks form around the clusters of galaxies due to continuous infall of surrounding medium toward the center of the cluster gravitational potential well. It has been suggested (Kang et