for specific, generic models. Broad absorptin line quasar, which comprise about 10 percent of radio-quiet quasar, show deep absorption troughs in their highly ionized permitted lines. The broad absortion 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 intergrated polarization in the absorption line throughs is found to be typically ~10 percent. An equatorial flow model gives a large degree of polarization (~0.15) parallel to the symmetry axis in the absorption through for the doublet transition J=1/2→1/2 3/2 and the polarization (~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 surace 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 occured in barred galaxies, owing to their dynamical interactions with the prominant 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 continous infall of surrounding medium toward the center of ghe cluster gravotational potential well. It has been suggested (Kang et

al. 1995) that these shocks could accelerate the protons up to the Greisen cutoff energy at 60 EeV via diffusive shock acceleration mechanism, provided the mean magneric field strength in the region around the shocks is at least of order a microgauss. By adopting a simple model of self-similar evolutions of clusters (Bertscinger 1985), we have estimated the proton flux at earth from 95 observed clusters of galaxies to the cosmic ray flux near $10^{19}$ eV can be significant, assuming that about 0.3% of the infall kinetic energy could be injected into the intercluster space in the from of the CR protons. A map pf flux-weighted distribution of these clusters is constructed and compared with the arrival directions of the UHE CRs. We show that the expected arrival directions of the UHE protons from clusters are nearly isotropic for energies below the Greisen cutoff, while observed siper-GZK events shows a rather strong correlation with the general direction of the supergalactic plane(Stanev et al. 1995).

## Spherical Wind Accretion onto Supermassive Black Hole at the Galactic Center

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The unique compact radio source Sgr A* shows many observational signs that it is powered by supermassive black hole. Recent observations also imply that it is surrounded by winds from nearby IR sources. So we explore the model in which multiwavelength spectrum from Sgr A* is due to the spherical accretion of these winds onto the central supermassive black hole.

Improving upon the previous work, we allowed the possibility that ions and electrons have different temperatures, included the Compton effects and pairs processes. Electrons radiate via synchrontron process and bremsstrahlung with comptonization.

We find that ion temperature approaches the virial one $\sim 10^{13}$K while electron temperature saturates at $\sim 10^{10}$K. However, this does not greatly affect the shape of the emission spectrum. If the black hole mass is $\sim 10^{6} M_{\odot}$, radio,X-ray and $\gamma$-ray band spectrum is reasonably explained by the model. Yet Compton effect which is neglected in previous works makes significant emission in IR band which could be imcompatible with observaions. Pair production is negligible and annihilation lines cannot be observed.