

Talk at Splinter Meeting

Splinter A

MULTI-FREQUENCY OBSERVATIONS OF THE EXTREME X-RAY WEAK  
QUASAR PG0043+039

M. Zetzl<sup>1</sup>, W. Kollatschny<sup>1</sup>, N. Schartel<sup>2</sup>

<sup>1</sup>*Institut für Astrophysik, Universität Göttingen*

<sup>2</sup>*XMM-Newton Science Operations Centre, ESA*

The optical luminous quasar PG0043+039 has been identified as a broad absorption line quasar (BALQ) based on its UV spectra. The non-detection in deep X-ray observations made the object the most extreme X-ray weak quasar known to date. We present simultaneously taken deep X-ray spectra with XMM-Newton, far-ultraviolet (FUV) spectra with HST, and optical/NIR spectra of PG0043+039 with the HET and SALT telescopes in July, 2013. We just detected PG0043+039 in our deep X-ray exposure with an extreme  $\alpha_{ox}$  gradient of  $-2.37$ . The overall continuum shows a maximum at an unusually long wavelength compared to most other AGN, indicating a very cold accretion disk. Broad Balmer lines and strong FeII blends dominate the optical/NIR spectra. The UV spectrum shows broad humps which can not be explained by known emission lines. We modeled these humps with cyclotron lines to explain their wavelengths and relative intensities. With this model we get for the line-emitting regions close to the black hole plasma temperatures of  $\sim 3$  keV and a magnetic flux density of  $\sim 2 \times 10^8$  G.