Abstract Submitted
for the APR15 Meeting of
The American Physical Society

Exceptional X-ray Weak Quasars: Implications for Accretion Flows WILLIAM BRANDT, BIN LUO, Pennsylvania State Univ, PATRICK HALL, York Univ, JIANFENG WU, Harvard CfA, SCOTT ANDERSON, Univ Washington, GORDON GARMIRE, Huntingdon Inst, ROBERT GIBSON, HP, DENNIS JUST, Univ Toronto, RICHARD PLOTKIN, Univ Michigan, GORDON RICHARDS, Drexel Univ, DONALD SCHNEIDER, Pennsylvania State Univ, OHAD SHEMMER, Univ North Texas, YUE SHEN, Carnegie Obs — Actively accreting supermassive black holes (SMBHs) are found, nearly universally, to create luminous X-ray emission, and this point underlies the utility of X-ray surveys for finding growing SMBHs throughout the Universe. However, there are exceptions to this rule that provide novel insights, including PHL 1811 analogs and some weak-line quasars. We have been systematically studying such X-ray weak quasars with the Chandra X-ray Observatory, aiming (1) to define their optical-to-X-ray spectral energy distributions, (2) to measure their basic X-ray spectral properties, and (3) to establish the optical/UV emission-line and continuum properties that most directly trace X-ray weakness. Many of these type 1 quasars show unusually hard X-ray spectra, suggesting that small-scale absorption/reflection has a primary role in causing their X-ray weakness and distinctive emission-line properties. Physical considerations indicate that this small-scale absorber/reflector may be the geometrically thick inner accretion disk expected to form if PHL 1811 analogs and weak-line quasars have unusually high SMBH accretion rates.

William Brandt
Pennsylvania State Univ

Date submitted: 17 Dec 2014 Electronic form version 1.4