Abstract Submitted
for the DPP10 Meeting of
The American Physical Society

Active Black Holes: Relevant Plasma Structures, Regimes and Processes Involving All Phase Space* B. COPPI, MIT — The presented theory is motivated by the growing body of experimental information on the characteristics, connected with relevant spectral, time and space resolutions, of the radiation emission from objects considered as rotating black holes. In the immediate surroundings of these objects three plasma regions [1] are identified: an innermost Buffer Region, an intermediate Three-regime Region and a Structured Peripheral Region. In the last region a Composite Disk Structure that is a sequence of plasma rings corresponding to closed magnetic surfaces is considered to be present and to allow intermittent accretion flows along the relevant separatrices. The non-linear "Master Equation" describing this structure is derived and solved in appropriate asymptotic limits. The rings structure, depending on microscopic plasma characteristics: i) can be excluded from forming in the intermediate region allowing the onset of a spiral structure with which High Frequency Quasi Periodic Oscillations are associated; ii) may be allowed to propagate to the outer edge of the Buffer Region where successive rings with opposite currents are ejected vertically (in opposite directions) and originate the observed jets; iii) is dissipated well before the Buffer Region. *Sponsored in part by the U.S. D.O.E. [1] B. Coppi, *Plasmas in the Laboratory and in the Universe*, Eds. G. Bertin *et al.* (Publ. *American Institute of Physics*, New York, 2010).

B. Coppi
MIT

Date submitted: 12 Jul 2010 Electronic form version 1.4