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On the disk wind mass loss rates in QSOs

Nicolas A Pereyra
University of Texas Rio Grande Valley, USA

We derive here a relatively simple expression for the total wind mass loss rates in QSOs within the accretion disk wind scenario. We show that the simple expression derived here for QSO disk wind mass loss rate is in very good agreement with the more "exact" values obtained through significantly more complex and detailed numerically intensive 2.5D time-dependent simulations. Additionally we show that for typical QSO parameters, the disk itself will be emitting mostly in the UV/optical spectrum, in turn implying that the X-ray emission from QSOs likely is produced through some physical mechanism acting at radii smaller than the inner disk radius (for a standard accretion disk, half of the initially gravitational potential energy of the accreting disk mass is emitted directly by the disk, while the other half "falls" closer towards the black hole than the inner disk radius). We also show that for typical QSO parameters, the disk itself is dominated by continuum radiation pressure (rather than thermal pressure), resulting in a "flat disk" (except for the innermost disk regions).

Biography

Nicolas A Pereyra has received his PhD in Physics from the University of Maryland in 1997. He is currently an Associate Professor in Astrophysics in the Department of Physics at the University of Texas Rio Grande Valley (UTRGV). He was a Research Assistant/Associate at Goddard Space Flight Center from 1993 to 1998. From 1999 to 2001, he was a Research Associate in Computational Physics at the Universidad de Los Andes, Venezuela. From 2001 to 2005, he has worked as a Research Associate in Computational Astrophysics at the University of Pittsburgh. From 2005 to 2007, he has worked as a Computational Physicist at Prism Computational Sciences, Inc., at Madison, WI. Since 2007, he has been working as a Faculty at UTRGV. He has many publications in refereed journals as well as many presentations at national and international conferences.

nicolas.pereyra@utrgv.edu

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