Invited Lecture

BLACK HOLE MASS ESTIMATES FROM HIGH-IONIZATION LINES: BREAKING A TABOO?

P. Marziani[1], A. Del Olmo[2], M. L. Martínez-Aldama[2], D. Dultzin[3], C. A. Negrete[3], M. D'Onofrio[4], E. Bon[5] and N. Bon[5]

[1]*INAF, Osservatorio Astronomico di Padova, IT 35122, Padova, Italy*
[2]*Instituto de Astrofisíca de Andalucía, IAA-CSIC, E-18008 Granada, Spain*
[3]*Instituto de Astronomía, UNAM, México D.F. 04510, Mexico*
[4]*Dipartimento di Fisica & Astronomia "Galileo Galilei", Università di Padova, Padova, Italy*
[5]*Astronomical Observatory, Volgina 7, 11060 Belgrade 38, Serbia*
E-mail: paola.marziani@oapd.inaf.it

Can high ionization lines such as C IV λ1549 provide useful virial broadening estimators? The question has been dismissed by several workers as a rhetorical one because blue-shifted, non-virial emission associated with gas outflows is often prominent in C IV λ1549 line profiles. Our analysis on a sample of $\approx$ 100 sources over a broad range of luminosity confirms that the line width of C IV λ1549 is not immediately offering a virial broadening estimator equivalent to the width of low-ionization lines. However, capitalizing on the results of Coatman et al. 2016 and Sulentic et al. 2017, we suggest a correction to FWHM C IV λ1549 for Eddington ratio and luminosity effects that can be applied over four dex in luminosity. Once corrected FWHM C IV λ1549 are used, a C IV λ1549 based scaling law yields black hole mass values with sample standard deviation $\approx$ 0.3 dex with respect to the ones based on Hβ.