

Abstract Submitted
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Anomalous responses of high-ionization lines in Active Galactic Nuclei (AGNs) to continuum variability¹ IRIS XIA, Monta Vista High School, MARTIN GASKELL, University of California, Santa Cruz — Despite the predictions of simple reverberation mapping models, the Balmer lines of AGNs often do not follow variations in the optical continuum. Analysis of long-term H β and continuum monitoring of NGC 5548 shows that there are anomalies in the Broad Line Region (BLR) response almost every year. It has been further shown that these anomalies exist in the BLR H β variability of many other AGN objects as well. To attempt to distinguish between various models for the causes of these responses, we have extended the analysis of anomalies to the higher ionization lines which probe higher energies in the continuum. We also looked at variability in the ultraviolet region. We have studied in particular variations of He II (both in the optical and in the UV) and C IV to investigate the statistics and sizes of anomalous responses to these lines and to compare these anomalies to the anomalous responses of H β . Our method was to convolve the varying UV and optical continua with response functions to compare to the observed BLR responses. We present the results of this analysis and of comparisons of the responses of lines to changes in the UV-optical continuum shape. We discuss proposed explanations of BLR anomalies in light of our results.

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