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The unusually strong coronal emission lines of SDSS J1055+5637

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Abstract content
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Many Seyfert galaxies display weak 'coronal' emission features corresponding to [Fe VII], [Fe XI] and [Fe XIV] in their optical spectra, whereas elsewhere these seem to be entirely absent. These lines appear to highlight zones in the nucleus irradiated by high-energy photons. The presence of these zones and the conditions therein as determined by the relative line strengths and profiles impose important constraints on the physical models of active galactic nuclei, and Seyferts in particular. In 2009 the discovery was announced of the highly unusual spectrum of SDSS J0952+2143, where the coronal lines are exceptionally strong. This paper presents a second object with abnormally strong coronal features, SDSS J1055+5637. The spectrum, line ratios and related parameters are compared to those of SDSS J0952+2143, three AGN with moderate coronal lines and one where the coronal lines are missing altogether. Possible mechanisms are discussed that may account for the stronger than usual coronal features.

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