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WITHDRAWN Identification of L-Shell Transitions in M-shell Iron Ions in the Spectra of Capella and Procyon

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We studied High Energy Grating Spectrometer (HETGS) observations of Capella and Low Energy Grating Spectrometer (LETGS) observations of Procyon observed by the *Chandra X-ray Observatory* in order to identify L-shell transitions of M-shell ions of iron, many of which also play an important role in the absorption features associated with spectra from active galactic nuclei. We previously identified several Fe XVI L-shell transitions in spectra of Capella between 15 and 18 Å. With the help of laboratory measurements from the Livermore EBIT-I electron beam ion trap and very accurate calculations using the multi-reference Møller-Plesset perturbation method, we have also identified Fe XV lines in the High Energy Grating and Medium Energy Grating (both on HETGS) spectra of Capella. Our analyses of the LETGS spectra of Procyon show that it provides an even better opportunity for studying such iron lines since Procyon is much cooler than Capella and the abundance of lower charge states of iron, i.e., of M-shell iron ions, is much higher. However, the LETGS has much lower resolving power than the HETGS, making line identification more difficult. Nevertheless, we have identified lines from Fe XVII, Fe XVI, Fe XIV, and, possibly, Fe XIII in the 15–18 Å region of the LETGS spectrum of Procyon. We have been awarded observation time of Procyon using the *Chandra* HETGS, which is scheduled to be performed in time to present the results.

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