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Poster Title -- Approximating the near K-edge mass absorption coefficients of Ni using an ultra-thin bi-metal Ti-Ni foil

Abstract: A method for determining the near K-edge mass absorption coefficients for Ni has been developed using an ultra-thin bi-metal Ti-Ni foil. This method uses NIST mass absorption coefficients with 1 % uncertainty combined with absorption measurements at multiple energies to estimate the relative thickness of the ultra-thin Ni. Based on this thickness, mass absorption coefficients can be fit for Ni near K-edge energies by incorporating fixed Ti coefficient values from the NIST XCOM (Berger et al. 2010) database together with absorption measurements at multiple energies. Once determined, these fit coefficients will be used to compute the thickness of a free-standing $\sim 8\mu\text{m}$ -thick metal foil over the same range of measurement energies. The thickness error determined from the $\sim 8\text{-}\mu\text{m}$ -thick Ni foil will be used to assess the fitting error. Comparison of fit coefficients with those of independent investigators shows good agreement at the 1 % error level.

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