

Interstellar X-Ray Absorption and Scattering

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Accurate estimates of the absorption of X-rays by interstellar gas and dust are of crucial importance for the analysis and interpretation of almost all astronomical soft X-ray observations. While the X-ray absorption data computed by Wilms et al. (2000) have been extensively used by the community, they assumed a reduced interstellar abundance which is just $\sim 70\%$ of solar. Also, they used the self-shielding approximation to estimate the X-ray absorption of dust which ignores scattering. Therefore, the X-ray absorption data of Wilms et al. could have been substantially underestimated. Here we report the state-of-the-art interstellar X-ray absorption and scattering values, derived by making use of the state-of-the-art atomic cross sections, the state-of-the-art interstellar abundances, and realistic X-ray dust physics.