Investigating dense interstellar dust environments in the X-rays

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We present newly acquired laboratory data in the X-ray band of several silicate compounds, taken at the Soleil synchrotron facility in Paris. We focus in particular on the features caused by the silicon and magnesium absorption. Magnesium and silicon absorption features were measured for a set of different silicates in both crystalline and amorphous form. The absorption features were implemented in a fitting program (SPEX) in order to model the interstellar dust absorption and scattering. These features, which become more prominent in the spectrum as a function of dust density, are a powerful diagnostics for the denser regions of our Galaxy. The shape and observed energy of these features may indeed reveal the composition and abundance of the dust grains. As a test case we applied our models to a high-quality spectrum of a bright background X-ray source located in the vicinity of the Galactic Center.