The X-ray side of the absorption by interstellar dust in the Milky Way.

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X-ray spectroscopy of interstellar dust (ID), seen in absorption against spectra of bright background sources, is a powerful tool to investigate and provide novel information on the chemistry of dust grains. For example, sharp and deep absorption features of Mg, Si, O and Fe, which are the building blocks of silicates, fall in the X-ray band. Therefore X-ray spectroscopy can also successfully study the nature of the iron inclusion in dust. The shift and the structure of a given absorption feature is indeed different for different absorbing dust grains. High-quality data have already revealed that Mg-rich silicates are favored with respect to the Fe-rich population and that Fe is most likely in metallic form (Costantini et al. 2012). Here we present the latest results on our large project which studies various lines of sight in our galaxy (e.g. Pinto et al. 2013) with different dust density and dust-formation history. The modeling takes now advantage of our new laboratory measurements, from several species, of the absorption features which are key for a complete understanding of the ID chemistry.