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# Carbon, sulfur and rare elements in the interstellar dust: an X-ray view

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Here we present the prospects of observing dust features of important constitutents of the ISM (C, Al, S, Ca) using future X-ray facilities (Arcus, XARM and Athena).
Present instruments already probed the diffuse interstellar medium (e.g. Costantini et al. 2012) and the moderately dense environments (Zeegers et al. 2017).
However, carbon, one of the main constituents of the ISM, is currently outside the reach of X-ray instruments. This element is visible in an X-ray spectrum when the extinction is relatively low, probing the diffuse ISM either in the local Galactic arm or in particularly diffuse regions. We will show that in a near future we will be able to distinguish among graphite, amorphous and hydrogenated carbon, helping settling the debate on which form the carbon should take in the ISM.
Alongside heavy depleted elements (e.g. Al, Ca), we will also show how possible depletion and inclusion in dust can be measured in dense environments, like molecular clouds, for sulfur, which presence in the solid phase is still debated.

## Consider for a poster?

Yes

**Primary author:** COSTANTINI, Elisa (SRON Netherlands Institute for Space Research)

**Presenter:** COSTANTINI, Elisa (SRON Netherlands Institute for Space Research)

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