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Modelling X-ray emission from simulations with Phox

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Hydrodynamic Cosmological Simulations offer a unique perspective in studying various aspects of structure formation in the universe. In particular, they hold great value in quantifying statistical properties such as the composition and enrichment of the baryonic matter distribution in the knots and filaments of the cosmic web. While it is observationally challenging to extract information from faint, low-density gas found in filaments and outskirts of galaxies, the projected capabilities of future X-ray missions provide new pathways towards a deeper understanding of these environments. Presented here is a collection of X-ray studies performed on the hydrodynamical simulation suite "Magneticum".
We make use of the matter properties traced by the simulation to investigate various X-ray properties of the CGM and ISM in poster-child disk and elliptical galaxies from the simulation while also taking into account contamination from stellar sources such as X-ray binaries. With these studies we aim to provide constraints and limiting factors towards observational targets.

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