

The dark matter component of the Gaia anisotropic substructure

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Recently, a prominent population of stars with a high radial velocity anisotropy has been discovered in the inner stellar halo, using the second data release from the Gaia satellite. An important question regarding this stellar structure is the properties of its unknown dark matter component in the Solar neighborhood. Determining the fraction and anisotropy of this dark matter component is especially important for the interpretation of dark matter direct detection results, which strongly depend on the local dark matter distribution. I will discuss the properties of the dark matter component of the Gaia anisotropic substructure, using the Auriga magneto-hydrodynamical simulations of galaxy formation. In particular, I will present the local dark matter density and velocity distributions of the simulated Milky Way-like halos with and without the anisotropic substructure, and discuss their implications for dark matter direct detection.

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