

GAIA: A STEREOSCOPIIC CENSUS OF OUR GALAXY

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Gaia is a space astrometry mission, a broad survey project following the measurement and operational principles of Hipparcos. It will help solving one of the most difficult yet deeply fundamental challenges in modern astronomy: to create an extraordinarily precise three-dimensional map of about one billion stars throughout our Galaxy and beyond. In the process, it will map their three-dimensional motions, which encode the origin and subsequent evolution of the Galaxy. Through comprehensive photometric and spectroscopic classification, it will provide the detailed physical properties of each star observed: characterising their luminosity, temperature, gravity, and elemental composition. This massive stellar census will provide the basic observational data to tackle an enormous range of important problems related to the origin, structure, and evolutionary history of our Galaxy. In addition, by measuring celestial objects in an unbiased manner, Gaia will provide fundamental data on solar system objects, general relativity and extragalactic objects. The presentation will summarise the mission, scientific capabilities, payload, science case, data processing and current status.