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Principali contributi di Gaia e della sua legacy sulle stelle variabili e la calibrazione della scala delle distanze

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Variable stars play a crucial role in several areas of astrophysics, as they provide an additional observable beyond flux: their luminosity or radial velocity variation with time. These variations—whether periodic or aperiodic—are linked to intrinsic stellar properties, allowing different classes of variable stars to serve both as population tracers and distance indicators.

The advent of the Gaia mission, particularly Data Release 3 (DR3), has had a profound impact on the study of variable stars, delivering high-precision photometric and radial velocity time series for tens of thousands of objects, along with accurate distance estimates derived from parallax measurements.

In this contribution, I present a brief overview of the Italian involvement in this field within the framework of the DPAC consortium. I will highlight key scientific results obtained following the release of DR3, as well as current efforts to improve data treatment in preparation for the upcoming DR4.

Finally, I will summarize the most significant results achieved with Gaia DR3 in the context of the cosmic distance scale using Classical Cepheids, and discuss the prospects for DR4.

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Session Classification: Cosmogonia della via lattea: da Gaia e la sua legacy ai progetti futuri (chair: M. Marconi)