

From star clusters to field populations: survived, destroyed and migrated clusters



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A morphological, kinematical and chemical analysis of the disrupting open cluster UBC274

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The wealth and homogeneity of Gaia data have allowed the discovery of several open clusters with signs of disruption.

We do a morphological, kinematic and chemical analysis of the disrupting cluster UBC 274 (2.5 Gyr, $d = 1778$ pc), with the objective of studying its global properties.

A new membership study up to 50 pc from its center and un to magnitude $G=19$ using GaiaEDR3 data, shows that the cluster has a highly eccentric (0.93) component, tilted 10 deg with respect to the plane of the Galaxy, which is morphologically compatible with the result of a test-particle simulation of a disrupting cluster.

We find a significant sign of mass segregation where the most massive stars appear 1.5 times more concentrated than other stars.

We obtained high resolution and high signal-to-noise spectra of 6 giants and subgiants. Our abundance analysis shows that the cluster has a slightly subsolar metallicity of $[Fe/H] = -0.08 \pm 0.02$. Its chemical pattern is compatible with that of Ruprecht 147, of similar age but located closer to the Sun, with the remarkable exception of neutron-capture elements which present an overabundance.

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