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CLUMP FORMATION THROUGH COLLIDING STELLAR WINDS IN THE GALACTIC CENTRE

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We study the process of clump formation from hydrodynamic instabilities in stellar wind collisions, using analytical and numerical techniques. We show that the cloud G2 in the Galactic Centre could have been formed in this way, with the most promising sources being compact massive binaries, such as IRS 16SW.

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INSIGHTS ON THE PROPERTIES OF THE ORION SPIRAL ARM. NGC 2302: FIRST RESULT

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The nature of the Local (Orion) arm - LOA is poorly known. We summarize the first results from a program to determine its properties, based on a large and homogeneous set of kinematic and photometric data.

We present a study of the LOA cluster NGC 2302 (Costa et al. 2015, A&A, 580, A4) which includes a photometric analysis and determination of its kinematic properties and orbital parameters.

A density analysis revealed a round concentration of stars within a radius of 2.5′, centered at α_{2000} = 102.965916°, δ_{2000} = -7.086300°

Making a geometric registration of our first and second epoch frames (12-year timebase), we determined the systemic PM of NGC 2302 relative to the local field, and, through a comparison with UCAC4, we transformed this PM into absolute. We obtained: μ_α cosδ, μ_δ = (-2.09,-2.11) mas yr^{-1}, with a standard error of 0.40 mas yr^{-1}, per coordinate.

Using medium-resolution spectroscopy of 76 stars in the field, we derived its systemic RV, which resulted to be 31.2 km sec^{-1}, with a standard error of 0.7 km sec^{-1}.

With photometric diagrams we identified the stellar populations in the field. More than one exists, each affected by a different reddening, with the cluster sequence at $E(B-V) = 0.23$. Isochrone fits, displaced for this reddening and for a distance modulus of $(m-M)_0 = 10.69$ ($d = 1.40$ kpc), indicate a cluster age of $\log(t) = 7.90 - 8.00$

With the kinematics and distance we determined the space motion of NGC 2302, by adopting a gravitational potential for the MW. The shape of the orbit and the resulting orbital parameters, indicate that it is a typical PopI object.

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