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Title:	Membership and age determination of M67 open cluster using GAIA EDR3 data
Authors:	Ghosh, Esan Mouli (/jspui/browse?type=author&value=Ghosh%2C+Esan+Mouli)
Keywords:	Membership and age determination GAIA EDR3
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Citation:	Journal of Physics: Conference Series, 2214(1), 12009.
Abstract:	We present our study on the membership and age determination of M67 (NGC 2682), one of the oldest open clusters known to date. Proper motions and parallax of stars collected in the Gaia Early Data Release 3 are used to derive the cluster members by employing the Hierarchical Density-Based Spatial Clustering of Applications with Noise algorithm, which is further improved upon using a Gaussian Mixture Model. We calculate the position of the cluster centre and the parallax to be $\alpha = 08^h 51^m 24^s \pm 1^m 33^s$, $\delta = 11^\circ 49' 12'' \pm 0^\circ 22' 48''$ and 1.1497 ± 0.06 mas respectively. The proper motion of the cluster is obtained to be $\mu_\alpha = -10.96 \pm 0.20$ mas/yr and $\mu_\delta = -2.90 \pm 0.19$ mas/yr. Subsequently, we perform an isochrone fitting to the ColorMagnitude Diagram (CMD) of M67 source members by using the Automated Stellar Cluster Analysis tool (ASteCA). Our findings estimate the log age, metallicity (z), reddening (EB-V), and distance modulus (m - M)0 to be 9.630 ± 0.033 log-years, 0.01865 ± 0.001 , 0.037 ± 0.008 , and 9.409 ± 0.031 respectively.
Description:	Only IISER Mohali authors are available in the record.
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