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Fine structure in the Sigma Orionis cluster revealed by Gaia DR3

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Sigma Orionis is an open cluster in the nearest giant star formation site - Orion. Its youth (2-4 Myr), little reddening and relative vicinity make it an important benchmark cluster to study stellar and substellar formation. I will present the first detailed kinematic study of the Sigma Orionis cluster with the Gaia DR3 data. It reveals a clear substructure of this complex region with proper motions that differ from the main cluster. This revised membership list with 72 new members will serve as the basis for the future studies of age determination, the frequency and evolution of stellar multiplicity, the presence of discs and exoplanets, and the initial mass function in the low mass/substellar regime down to planetary masses. Connections between the Gaia and the Euclid space mission for the study of this cluster will be discussed.

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