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Bulk rotation in star cluster via N-Body simulations and observations

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N-Body simulations are adopted to understand the rotation in star clusters via the code N-Body6++GPU. The morphology of open clusters are significantly changed due to bulk rotation, especially at the early a few dozen million years. Binary systems also plays an important role in the dynamical evolution of rotating clusters. By comparing simulations to observation, we provide an example of a rotating cluster, Group X. We report the detection of bulk rotation signature in this nearby 400 Myr old star cluster Group X. Statistical analyses of the 3D velocity and residual motions of the member stars clearly indicate the presence of three-dimensional rotation in the cluster.

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