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## The origin of the Hríd stellar stream: exploring possibilities via N-body simulations.

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Hríd is a low-latitude stream that is very difficult to detect because it is located at dense regions of the disk. Additionally, the recently discovered globular cluster (GC) VVV-CL160 has kinematic properties distinct from almost all other known GCs in our Galaxy. Surprisingly, these two objects have very similar kinematics, metallicities and are also relatively close to each other. It has been proposed that Hríd and VVV-CL160 might be related with an yet undiscovered dwarf galaxy. Hence, this work aims to make use of  $N$ -body simulations in order to investigate the existence of links between VVV-CL160 and Hríd regarding their dynamics.

In all simulations, we have used semi-analytic models:  $N$ -body system (the clusters) immersed in analytical potentials (a realistic representation of the Milky Way's potential). We studied possible scenarios that could have led to the formation of Hríd only due to VVV-CL160. For the initial conditions, we used the known mean values of this cluster's positions and proper motions, then we explored the plausible values for its mean radial velocity in order to integrate its orbit back in time. Also, we considered orbits of 150 Myr (about its last pericentric passage), 600 Myr and 1 Gyr. Regarding the  $N$ -body models, we took into account the known structural parameters of VVV-CL160 and, as a starting point, we used two King's models with a total mass of  $2 \times 10^4 M_{\odot}$ , derived from an average mass-to-light ratio of approximately 2 for GCs, with  $10^4$  particles, but different concentrations. After this investigation, although it remains unlikely that Hríd was formed only due to this cluster, it was possible to produce streams similar to Hríd. Therefore, our preliminary results are additional arguments towards the idea that, at least, this stream and this cluster may share an intertwined history of formation and evolution, reinforcing their dynamical link.

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