

# The Dynamical Environments of Open Star Clusters

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Most stars (and presumably planets) are born in star clusters. However, star clusters can be hostile environments, where close stellar encounters can be frequent and can have violent consequences, including direct stellar collisions. Such encounters can dramatically alter stellar and planetary systems, and can produce exotic stars that define new pathways in stellar evolution. Open clusters are particularly valuable to our understanding of these processes due to their accessibility to both comprehensive ground-based observations and full-scale sophisticated N-body simulations. Indeed, the combination of both our observations and N-body simulations is beginning to reveal a highly accurate and detailed picture of the stellar dynamical environment of open clusters. In this talk, I will discuss the impact of these dynamical processes on the observed characteristics of binary stars and planetary systems, and the origins of X-ray sources and blue straggler stars.