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The Astrophysics of Stellar Clusters

Stellar clusters are common. Globular clusters contain some of the oldest stars, whilst the youngest stars are found in OB associations or in other clusters associated with recent star formation.

Such crowded places are hostile environments: a large fraction of stars will collide or undergo close encounters. I will explain how stellar clusters are factories for producing exotic objects, including potentially intermediate-mass black holes which can grow into supermassive black holes in galactic nuclei. I will also discuss how planetary systems similar to our own solar system are vulnerable within stellar clusters due to interactions with other stars. Thus by studying stellar clusters we will learn more about the rarity of planetary systems similar to our own solar system. I will explain how the depletion of red giants in the very centre of our own galaxy may tell us something about its history.