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## How long was the solar system in a stellar cluster?

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It is well established that the solar system is home to radioactive isotopes that are formed by high mass stars going supernova. This suggests that the solar system was near at least one of these stars during its formation. As it is unlikely for this to have occurred in a field environment, it is probable that the solar system formed in a stellar cluster. In order to determine how typical the formation and evolution of our solar system is in this regard, we use the new Empirically Motivated Physics (EMP) simulations of galaxy formation and evolution to track the formation and evolution of star particles within Milky Way type galaxies across cosmic time. I will describe a new metric that we have developed which is designed to measure how long stars in a star particle remain gravitationally bound in clusters. I will present results comparing this metric for star particles of different age and metallicity, focusing in particular on what this tells us about the length of time that Sun-like stars spend in clusters. I will finish by describing the long-term goal of the project which is to predict the most likely evolutionary history of a star based on its present-day characteristics, and the implications of this history for any planetary systems orbiting the star.