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The effect of dynamically formed binaries on young planetary systems

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Stars do not form in isolation but together with other stars, often in a clustered environment. During the dynamical evolution of these environments, stars will interact with each other. These encounters will affect any planetary systems that are in the process of forming around them. Many typical fly-by simulations focus on a single fly-by event's effect on a planetary system. However, during the early dynamical evolution of the birth cluster, dynamical binaries can form quickly from two single stars. The effect of dynamically formed binaries on any planetary systems that might have formed around their initially single stars is largely unexplored. In this talk, I will present results from young star cluster N-body simulations showing how dynamical binaries can be formed and destroyed again. I will then show isolated planet system simulations and present results focussing on the differences in the orbital parameters of planetary systems with close-in Super-Earths either in a dynamical or a primordial binary. I will show how dynamical binaries can accelerate the disruption of planetary systems and compare the differences in the resulting planetary architectures after several hundred Myr.

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