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The formation of circumbinary terrestrial planets via core accretion

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Using a combination of N-body simulations and hydrodynamic models, we explore how terrestrial planets form around binary stars through planetesimal accretion. We consider planet formation around both circular and eccentric binaries and in planetesimal disks that are coplanar, polar, or misaligned to the binary orbital plane. We find that terrestrial planet formation via core accretion around an eccentric binary is more likely in the polar alignment than the coplanar alignment. Solid bodies in misaligned disks undergo differential nodal precession that results in high collision bodies and fragmentation. In this case, planet formation is mostly inhibited and instead, interstellar asteroids are generated.

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Session Classification: CB disc properties and planet formation