

## Formation and early evolution of the Earth-Moon System

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The giant impact hypothesis is the most popular model of the Moon formation. Here, we investigate the physical and thermal state of the Earth-moon system just after the giant impact, and discuss its effect on the subsequent evolution of the Earth-Moon system. A impact-generated proto-lunar disk is likely partially vaporized. Sedimentation of condensates in the disk occurs within 1 years after impact. Simultaneously, some fraction of silicate vapor escapes from the disk resulting in depletion of volatile elements from the system. Rapid formation of the Moon from the disk results in further depletion of volatile elements. On the other hand, chemical fractionation proceeds in the proto-Earth heated by tidal dissipation as well as the impact.