Planet migration during the formation of the Solar System

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Growing planets interact gravitationally with their natal gas disc. Low mass planets are subject to type-I migration, where the migration direction can be inwards or outwards, depending on the local properties of the disc. Larger planets push away the material from their orbits and open gaps in the protoplanetary disc, which changes the migration speed. The planets now migrate in type-II migration, which follows the viscous evolution of the protoplanetary disc.

In this talk, I will first review the principles of type-I and type-II migration and then apply planet migration on growing planets in the pebble accretion scenario. I will argue that all giant planets of our solar system have to form at distances of beyond 15 AU due to the strong migration rates. I will then also discuss what this means for the chemical composition of giant planets.