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## **Giants in the cradle - Part 1: exploring how Jupiter's birth shaped the compositional evolution of the inner Solar System**

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Jupiter, the archetype of cold giant planets, played a key role in controlling the transport of volatile materials like water and organics between the inner and outer Solar System since its birth. While an extensive body of work highlights how its formation and migration dynamically excites the surrounding planetesimal disk, very few studies investigate the global collisional implications of this process for the inner Solar System. In this talk we will present the results of ongoing work on the interplay between the forming Jupiter and the early Solar System and discuss how this insight informs us on the evolution of systems hosting cold giant planets around other stars. We will show how Jupiter's formation injected in the asteroid belt large amounts of icy planetesimals on comet-like orbits, whose collisions with the local rocky planetesimals delivered water and volatiles inside the water snowline, and gave origin to the chondritic asteroids of which we have samples in the form of meteorites. We will show how the different classes of chondritic meteorites provide a detailed record of the compositional gradient existing at the time in the solar nebula. Finally, we will discuss how these processes can restart the pebble accretion process of the terrestrial planets, bypassing the barrier effect of Jupiter, and present lines of evidence from protoplanetary disks suggesting that these events are common in the formation histories of planetary systems with giant planets.

**Presenter:** Dr TURRINI, Diego (INAF-Torino, Italy)

**Session Classification:** Formation of gaseous giant planets and their impact on inner low-mass planets in the habitable zone: from solar system to exoplanetary systems