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Unveiling planet formation with the SKA

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The last decade has seen a transformation of the field of planet formation, high angular resolution images and surveys with ALMA and the VLT telescopes have drastically changed our view of protoplanetary disk evolution. The main results are: the realization that planets form on timescales much faster than previously thought and the detection and characterization of the first protoplanets embedded in disks and the disk-planet interaction, which is thought to shape disk and planets evolution and determine the diversity of exoplanets architectures. These results have also highlighted and enhanced the expectations on the SKA contribution. While the basic contributions from SKA outlines in the Testi et al. (2015) contribution to the SKA Science Book are confirmed, the relevance of the SKA has increased with time. ALMA surveys have demonstrated that the planet formation region in disks (within 10-20AU from the star) are optically thick at millimetre wavelengths, requiring to extend observations to longer (SKA) wavelengths to probe the assembly of planets and reveal the mass budget of solids during planet formation. In this talk I will discuss the work done as part of the cradle of life working group starting from VLA and ALMA surveys of planet forming disks to prepare for SKA observations. I will also highlight the work that we are undertaking in the coming years to sharpen the plans for the SKA in this scientific area.

Research area

Cradle of Life

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