Formation of Planetary Systems

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ELT key projects:

Disc structure in the habitable zone Properties of exoplanets Extremes of the IMF

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Disc structure

- Habitable region means probing the inner 1-2 AU around solar-mass stars.
- Spatial resolution of ~ 2 mas will give sufficient spatial resolution within 1 AU. At 150 pc, 1AU=6.6 mas. Imaging of blobs,gaps, spiral waves.
- Optical high spectral resolution (R~50,000) allows to study disc dynamics. Doppler tomography as a function of distance to the star.



Properties of exoplanets

- High contrast imaging.
- Low resolution spectroscopy from visible to mid-IR.
- Time and Environment dependence using regions within 500pc: ONC, sigma Ori, Tau-Aur, Sco-Cen OB association, IC2391, alphaPer, Pleiades, Hyades, M67
- Spectra of Jovian sized planets detected by radial velocity surveys.



Extremes of the IMF

- Free-floating planets and embedded massive stars.
- High resolution near-IR imaging and midresolution spectroscopy.
- Universality of the IMF (BDs in magellanic clouds).

