Imaging planet-formation signatures with ground-based interferometry & overview of EII activities

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Complex non-linear and dynamic processes lie at the heart of the planet formation process. Ground-based infrared interferometer such as the Very Large Telescope Interferometer (VLTI) can make unique contributions for advancing our understanding of protoplanetary disk structure and the planet formation process.

In this contribution, I briefly review the capabilities of VLTI and discuss recent observational results that have been obtained on the class of transitional disks. Near- and mid-infrared interferometric studies of these systems revealed the presence of extended gaps and complex density inhomogeneities that might be triggered by orbiting planets.

In the second half of the talk, I will give a brief overview about the activities of the European Interferometry Initiative (EII) and projects of our member institutions, in particular the VLTI 2nd-generation instruments GRAVITY and MATISSE.
Finally, I will outline the “Planet Formation Imager" (PFI) project, which aims to develop the roadmap for the construction of a new near-/mid-infrared interferometric facility that will be optimized to unmask all the major stages of planet formation, from initial dust coagulation, gap formation, evolution of transition disks, mass accretion onto planetary embryos, to disk dispersal.