

RadioNet support for scientific events

Application form for organisers

EVENT INFORMATION	
TITLE	Planet-forming disks in the ALMA and SPHERE Era
PLACE	Villa Vigoni, Italy : http://www.villavigoni.it/ (German-Italian Center for European Excellence)
ORGANISER'S INSTITUTE NAME	4 organisers: Leonardo Testi – ESO, Garching Thomas Henning – Max Planck Institute for Astronomy (MPIA) Tom Ray – Dublin Institute for Advanced Studies (DIAS) Myriam Benisty – IPAG, Université Grenoble Alpes
DATE	March 4 to March 8, 2019
NO. OF PARTICIPANTS	70
TOTAL EVENT COST	40500 euros , excluding lodging of participants. 70800 euros, including lodging.
RADIO NET SUPPORT	8000 euros
OTHER SOURCES OF FUNDING	We already gathered 25000 euros from grants of T. Henning (national), T. Ray (ERC), and L. Testi (national).

REQUEST

(max. 2 pages)

Short abstract of the event	<p>Planet formation occurs in protoplanetary disks, within typically 10 million years. The wide diversity of exoplanetary systems detected today may be related to the variety of initial conditions for their formation in the circumstellar disk. The formation of rocky planets, or of giant planet cores, starts with the coagulation of small dust grains. However, these dust particles rapidly drift towards the star in very short timescales (~1000 years) preventing the formation of planetesimals. To overcome this fundamental problem, various theories have predicted the existence of “traps” that would maintain the dust grains and allow them to efficiently grow. Such features would appear as rings or asymmetries in images.</p> <p>Since a few years, our field is being transformed by the advent of the new generation of extreme adaptive optics systems, and the availability of ALMA and NOEMA new capabilities. Their high sensitivity and high resolution power have allowed us to image the planet-forming regions in disks with an unprecedented level of details. Observations show that nearly all disks host sub-structures, if they are looked at with a sufficient resolution.</p> <p>What roles do these structures play in the formation of planets? Are they tracing the dust traps that keep the grains? How large is their reservoir of dust? Are these features also present in the gas, which is the major component of disk and the one that drives its evolution? Do they trace dynamical or/and chemical processes? Can they hint towards the presence of already-formed planets?</p> <p>Dust is the key constituent of planetary cores, but volatiles are the essential constituents of planetary atmospheres and dust dynamics in disks is dominated by the interaction with the gas, which dominates the overall mass of the disk. Tracing gas in the outer disk is complicated by the effects of physical phase</p>
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	<p>transitions and chemical evolution. In the last few years, enormous progress have been made in the understanding of the gas content and chemical composition in disks, thanks to APEX, IRAM-30m, NOEMA and ALMA observations of the outer disk. Many key questions still remain: what is the timescale for the evolution of gas in disks, which regulates the availability of material for planet formation? What drives the evolution of the gas to dust ratio? What are the abundances of the major species in the gas and solid phases?</p> <p>The workshop will aim at discussing the first steps of planet formation, the structure of protoplanetary disks, the physical and chemical conditions of the volatiles, and the various processes driving the accretion onto the star and disk evolution. It will cover the following aspects:</p> <p>1/ Dust grain evolution (grain growth, radial drift, settling) with photometric studies, scattered light imaging, millimeter and radio continuum, and polarization imaging.</p> <p>2/ Gas structure and chemical evolution in disks as a function of host stellar mass and evolutionary stage.</p> <p>3/ Disk thermo-chemical structure as derived from infrared and millimeter spectroscopy.</p> <p>4/ Disk evolution with models of accretion, photoevaporation, magneto-hydrodynamical winds, magneto-hydrodynamic instabilities, planet-disk interactions, and their link to the exoplanets structure and architectures.</p> <p>A particular emphasis will be brought on the characterization of small-scale features detected with high angular resolution studies, and on the understanding of their role in supporting or inhibiting planet formation. We will also discuss the possible achievements of future instrumentation in radio-astronomy in the field of protoplanetary disks.</p> <p>This workshop will celebrate and honor the career of Professor Antonella Natta, from the Dublin Institute for Advanced Studies (DIAS), and her outstanding contributions to the field of star formation and protoplanetary disks.</p>
Relevance for RadioNet	The workshop is highly relevant to RadioNet, as it will be focused on presenting and interpreting observations of protoplanetary disks obtained with Radionet infrastructures, in particular APEX, IRAM-30m, NOEMA and ALMA. Perspective for radio interferometry in our field will also be discussed.
Impact on RadioNet	This workshop will bring together scientists from the radioastronomy community, observers and modelers. Talks will mostly be given by young scientists promoting results obtained with RadioNet infrastructures. The workshop will have large discussion sessions that will likely lead to new collaborations between participants.
Use of the RadioNet contribution	We will use 2/3 of the RadioNet contribution to support the travel costs of RadioNet scientists (travel, lodging, and meals), to lower the registration fee for students, and 1/3 of the contribution to contribute to the expenses of the workshop (in particular to cover the conference room (cost of 1250 euros) and the local transportation from airport (cost 2000 euros)).
Ethics	We will conform to the strict code of conduct for the organisation of the scientific workshops, and to gender equality. We are committed to ensure an excellent workshop, regardless of gender, ethnicity, sexual orientation, religion and physical appearance. We will not tolerate any harassment, sexist or racist comments, and participants will be asked to comply with this code of conduct.

Privacy Policy: With signing this template and applying for RadioNet funding, I accept the [Privacy Policy of RadioNet](#), which is based on the EU General Data Protection Regulation (GDPR).

Place & Date: Grenoble, June 30, 2018

Signature of the applicant:



Myriam Benisty for the organizing team