

The 1st EU-FP7 *FISICA** Workshop:

Science Goals of a Sub-arcsecond Far-infrared Space Observatory

17-18th Feb.2014

Aula Marconi, National Council of Research, Piazzale Aldo Moro 7, Roma

**Far-Infrared Space Interferometer Critical Assessment*



Workshop Program

Scientific Organising Committee: Javier Goicoechea, Matt Griffin, Frank Helmich, Roberto Maiolino, Sergio Molinari, Chris Pearson, Marc Sauvage, Giorgio Savini (co-chair), Luigi Spinoglio (chair), Bruce Swinyard

Local Organising Committee: Luigi Spinoglio (INAF-IAPS), Diana Martella (AGI), Erina Pizzi (INAF-IAPS)

The aims of the meeting are to assess the scientific requirements of a mid- to far-IR Interferometer from the space. The scientific topics covered include solar system planets, exoplanets, protoplanetary disks, protostellar evolution, high mass star formation, AGNs and Starburst galaxies and the evolving Universe.

A presentation of the current and future high spatial resolution facilities at adjacent frequencies as well as the concept studies of MIR/FIR interferometers will be given.

Invited Speakers: Giovanna Tinetti (UCL), Mauro Barbieri (Padova Univ.), Inga Kamp (Kapteyn), Linda Podio (INAF), Emiliano D'Aversa (INAF), Brunella Nisini (INAF), Sergio Molinari (INAF), Javier Goicoechea (CSIC), Giorgios Magdis (Oxford Univ.), Alessandro Marconi (Florence Univ.), Chiara Feruglio (IRAM), Lucia Marchetti (Open Univ.), Carlotta Gruppioni, (INAF), Paola Andreani (ESO), Gillian Wright (ROE), Roberto Gilmozzi (ESO), Stefan Kraus (Exeter Univ.), Stephen Rinehart (NASA), Chris Pearson (RAL), Giorgio Savini (UCL), Valerio Iafolla (AGI/INAF), Marc Sauvage (Saclay), Frank Helmich (SRON), David Leisawitz (NASA), Hiroshi Matsuo (NAOJ).

Web site: <http://fisica.iaps.inaf.it/wp/>

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8:00 – 9:30 *Registration*

9:30 - Welcome and brief introduction to the work (Giorgio Savini – Luigi Spinoglio)

Session 1. *Planets – Chair: Frank Helmich*

9:45 – [Spectroscopy of planetary atmospheres in our galaxy](#) - **Giovanna Tinetti** (UCL, UK)

10:15 – [Exoplanets hunt and characterization](#) – **Mauro Barbieri** (Padova Univ., I)

10:45 – [Atmospheres of icy giant planets in the solar system](#) – **Emiliano D’Aversa** (IAPS-INAF, I)

11:15 - 11:45 *Coffee break*

11:45 – [Protoplanetary disks and planet formation](#) - **Inga Kamp** (Kapteyn, Groningen, NL)

12:15 - [High mass star formation](#) - **Sergio Molinari** (IAPS-INAF, I)

12:45 - 13:45 *Lunch*

Session 2. *Galactic Astronomy – Chair: Michel Fich*

13:45 – [Water in protostellar evolution](#) - **Brunella Nisini** (OARM-INAF, I)

14:15 – [The search for water in protoplanetary disks: Herschel and beyond](#) – **Linda Podio** (INAF Arcetri, I)

14:45 – [The very early phases of star formation](#) - **Stefano Pezzuto** (IAPS-INAF, I)

15:00 – [Debris disks: Now and the future](#) – **Wayne Holland** (ROE, UK)

15:15 – [The Nucleus of our Galaxy](#) - **Javier Goicoechea** (CSIC, E)

15:45 - 16:15 *Coffee break*

Session 3. *Extragalactic Astronomy – Chair: Alberto Franceschini*

16:15 – [Resolving the emission regions of Active Galactic Nuclei and Star forming galaxies in the Local Universe](#) – **Georgios Magdis** (Oxford Univ., UK)

16:45 – [High angular resolution observations of Active Galactic Nuclei](#) – **Alessandro Marconi** (Florence Univ., I)

17:15 – [The evolving Universe: FIR deep field observations](#) – **Lucia Marchetti** (Open Univ., UK)

17:35 – [High resolution IR observations of X-ray obscured AGN](#) - **Carlotta Gruppioni** (OABO - INAF, I)

17:55 – [Probing the early phases of the evolution of supermassive black holes in proto-spheroidal galaxies at \$z > 1.5\$](#) - **Mattia Negrello** (OAPD - INAF, I)

18:15 *end first day*

20:00 Social Dinner at the Ristorante Eleonora D’Arborea, Corso Trieste 23, Roma

<http://www.ristoranteleonoradarborea.com>

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9:15 - Brief summary of Day 1 - Luigi Spinoglio

Session 3. *Extragalactic Astronomy (continued)*:

9:30 – [Feed back from AGNs: molecular outflows](#) - Chiara Feruglio (IRAM, F)

Session 4. *Setting the scene of high resolution at adjacent frequencies* – Chair: Laurent Vigroux

10:00 - [Discovery Science with ALMA spectroscopic and imaging capabilities](#) - Paola Andreani (ESO)

10:30 - [Scientific Capability of the James Webb Space Telescope and the Mid-InfraRed Instrument](#) - Oliver Krause (MPIA, DE) on behalf of Gillian Wright (ROE, UK) (TBC)

11:00 - 11:30 *Coffee break*

11:30 - [Science and technology of the 39m E-ELT](#) – Roberto Gilmozzi (ESO)

12:00 - [VLTI - Imaging planet-formation signatures with ground-based interferometry & overview of EII activities](#) - Stefan Kraus (Univ. of Exeter, UK)

12:30 - [The Balloon Experimental Twin Telescope for Infrared Interferometry \(BETTII\)](#) - Stephen Rinehart (GSFC-NASA, USA)

13:00 - 14:00 *Lunch*

Session 5. *Vision of future interferometry* – Chair: Matt Griffin

14:00 - [The need of high spatial resolution: what single dish telescopes in space cannot do](#) – Chris Pearson (RAL Space, UK)

14:20 - [FISICA: efforts to support FIR Interferometry from the space](#) – Giorgio Savini (UCL, London, UK)

14:40 - [FISICA: engineering problems and system requirements for interferometric observations from the space](#) - Valerio Iafolla (INAF & AGI, Roma, I)

15:00 - [The Sub-arcsecond FIR Space Observatory: the TALC concept](#) – Marc Sauvage (Sap, Saclay, F)

15:20 - 15:40 *Coffee break*

15:40 - [Heterodyne Interferometry: the ESPRIT concept](#) - Frank Helmich (SRON, Groningen, NL)

16:00 - [The Space Infrared Interferometric Telescope \(SPIRIT\)](#) – David Leisawitz (GSFC-NASA, USA)

16:20 - [Photon Counting Terahertz Interferometry](#) – Hiroshi Matsuo (NAOJ, Japan)

Session 6. *Wrap up*

16:40 - [From the science requirements to the mission concept](#) - Giorgio Savini/ Matt Griffin

17:00 - *Round Table on Future prospects and Initiatives organized by the chairs of the sessions*