

THESEUS CONFERENCE 2021 PROGRAMME

VIRTUAL - 23-26 March 2021

All times are in CET=UT+1

Tuesday 23 March

SESSION 1 - Tuesday 23 March (13:40 - 15:40)

The THESEUS mission (Chair Enrico Bozzo)

13:40 (20 min) Welcome address

14:00 (20 min) [The THESEUS space mission concept: updated design, profile and expected performances](#) (**Lorenzo Amati**, I)

14:20 (20 min) [The ESA/M5 process](#) (**Paul Mcnamara**, I)

14:40 (20 min) [THESEUS scientific requirements](#) (**Matteo Guainazzi**, I)

15:00 (20 min) [The Soft X-ray Instrument \(SXI\) on THESEUS](#) (**Paul O'Brien**, I)

15:20 (20 min) [XGIS: The X/Gamma-ray Imaging Spectrometer on-board THESEUS](#) (**Claudio Labanti**, I)

15:40 (20 min) Coffee Break

SESSION 2 - Tuesday 23 March (16:00 - 18:00)

The THESEUS mission (Chair Lorenzo Amati)

16:00 (20 min) [The IRT Telescope on board the THESEUS mission](#) (**Diego Götz**, I)

16:20 (20 min) [THESEUS mission profile](#) (**Thibaut Prod'homme**, I)

16:40 (20 min) [THESEUS mission operation concept](#) (**Enrico Bozzo**, I)

17:00 (20 min) [Unveiling the nature of the prompt emission with THESEUS](#) (**Giancarlo Ghirlanda**, I)

17:20 (20 min) [The THESEUS Mission Observation Simulator \(MOS\)](#) (**Jonan Larranaga**, I)

17:40 (20 min) [The THESEUS Ground Segment](#) (**G Belanger**, I)

Wednesday 24 March

SESSION 3 - Wednesday 24 March (9:00 - 10:40)

Investigating the early Universe & cosmic evolution via GRBs (Chair Diego Götz)

09:00 (20 min) [GRBs in the early Universe](#) (**Nial Tanvir**, I)

09:20 (20 min) [Tracing the metal-enrichment in the early universe with THESEUS](#) (**Lise Christensen**, I)

09:40 (20 min) [GRBs as tracers of cosmic star formation and first galaxies](#) (**Susanna Vergani**, I)

10:00 (20 min) [IRT expected science from very high redshift GRBs](#) (**Emeric Le Floch**, I)

10:20 (20 min) [General properties of optical/NIR emission of long-duration GRBs and their host galaxies](#) (**Alberto J. Castro-tirado**, I)

10:40 (20 min) Coffee Break

SESSION 4 - Wednesday 24 March (11:00 - 12:45)

Investigating the early Universe & cosmic evolution via GRBs (Chair Nial Tanvir)

11:00 (20 min) [Enlightening cosmic dark ages with GRBs](#) (**Ruben Salvaterra**, I)

11:20 (15 min) [Assessing the detectability of optical afterglows of short gamma-ray bursts by ground-based facilities in the THESEUS era](#) (**Lána Salmon**, C)

11:35 (15 min) [Population synthesis of metal-poor massive stars - How to use THESEUS' high-redshift GRB data to constrain the physics of Pop-II and Pop-III progenitors](#) (**Dorottya Szécsi**, C)

11:50 (15 min) [GRBs and host galaxies studies, the need for deep ancillary multi-wavelength data](#) (**Denis Burgarella**, C)

12:05 (20 min) [Measuring the cosmological parameters with Gamma-ray Bursts](#) (**Massimo Della Valle**, I)

12:25 (20 min) [Investigating the early Universe & cosmic evolution via GRBs](#) (**Ester Piedipalumbo**, I)

12:40 (80 min) Lunch Break

SESSION 5 - Wednesday 24 March (14:00 - 15:25)

Multi-messenger astrophysics (Chair Carlo Ferrigno)

14:00 (30 min) [THESEUS role in multi-messenger astrophysics during the 2030s](#) (**Giulia Stratta**, I)

14:30 (20 min) [Gravitational wave detections](#) (**Marica Branchesi**, I)

14:50 (20 min) [Binary neutron stars: Einstein's richest laboratory](#) (**Luciano Rezzolla**, I)

15:10 (15 min) [Long-lived neutron star in binary neutron star mergers](#) (**Nikhil Sarin**, C)

15:25 (35 min) Coffee Break

SESSION 6 - Wednesday 24 March (16:00 - 17:30)

Multi-messenger astrophysics (Chair Giulia Stratta)

16:00 (20 min) [The ENGRAVE collaboration](#) (**Morgan Fraser**, I)

16:20 (20 min) [Neutrino telescopes and their role in multi-messenger astrophysics](#) (**Maurizio Spurio**, I)

16:40 (20 min) [Multimessenger Probes of High-energy Sources](#) (**Dafne Guetta**, I)

17:00 (15 min) [Multi-messenger astronomy with INTEGRAL](#) (**Carlo Ferrigno**, C)

17:15 (15 min) [New perspectives for testing physics at fundamental level with multimessenger astronomy.](#) (**Aleksandra Piórkowska-Kurpas**, C)

Thursday 25 March

SESSION 7 - Thursday 25 March (9:00 - 10:40)

Time-domain astrophysics (Chair Giancarlo Ghirlanda)

- 09:00 (20 min) [THESEUS capabilities for time variability studies](#) (**Sandro Mereghetti**, I)
09:20 (20 min) [Fundamental Physics studies with THESEUS](#) (**Andrea Santangelo**, I)
09:40 (15 min) [Magnetars and the transient sky: from Galactic X-ray outbursts to extra-Galactic FRBs](#) (**Nanda Rea**, C)
09:55 (15 min) [Giant flares in the extragalactic magnetar population](#) (**Maeve Doyle**, C)
10:10 (15 min) [Accreting and transitional millisecond pulsar binaries with Theseus.](#) (**Domitilla De Martino**, C)
10:25 (15 min) [Understanding tidal disruption events with Theseus](#) (**Natalie Webb**, C)
10:40 (20 min) Coffee Break

SESSION 8 - Thursday 25 March (11:00 - 12:35)

Time-domain astrophysics and GRB science (Chair Sandro Mereghetti)

- 11:00 (20 min) [Frontiers in GRB and multi-messenger/time domain astrophysics](#) (**Tsvi Piran**, I)
11:20 (15 min) [Observing X-ray shock break-out emission with THESEUS](#) (**Luca Izzo**, C)
11:35 (15 min) [Metal abundances in GRB host galaxies, out to high-z](#) (**Annalisa De Cia**, C)
11:50 (15 min) [THESEUS and the star formation near and far](#) (**L. Viktor Tóth**, C)
12:05 (15 min) [The future of the redshift estimation of GRBs](#) (**Istvan Racz**, C)
12:20 (15 min) [The link between the formation of spinning binary black-hole mergers and long gamma-ray bursts](#) (**Simone Bavera**, C)

12:45 (75 min) Lunch Break

SESSION 9 - Thursday 25 March (14:00 - 15:40)

Next-generation facilities and their synergies with THESEUS (Chair Paul O'Brien)

- 14:00 (20 min) [Athena and its synergy with THESEUS](#) (**Luigi Piro**, I)
14:20 (20 min) [LISA and its possible synergy with THESEUS](#) (**Stéphane Paltani**, I)
14:40 (20 min) [Synergy of THESEUS with ELT, TMT and large optical/NIR facilities of the future](#) (**Stéphane Basa**, I)
15:00 (20 min) [Piercing the Epoch of Reionization with THESEUS and SKA](#) (**Andrea Ferrara**, I)
15:20 (20 min) [Highlights of the H.E.S.S gamma-ray burst observation program](#) (**Fabian Schüssler**, I)

15:40 (20 min) Coffee Break

SESSION 10 - Thursday 25 March (16:00 - 17:30)

Time-domain astrophysics and GRB science (Chair Maria Caballero-Garcia)

- 16:00 (15 min) [Broadband Modeling of the GRB Prompt Emission from Optical to Gamma-Rays](#) (**Sylvain Guiriec**, C)

- 16:15 (15 min) [Herschel FIR observations of 45 GRB host galaxies](#) (**Nofoz Suleiman**, C)
- 16:30 (15 min) [A new type of changing look AGN with extreme X-ray properties](#) (**Claudio Ricci**, C)
- 16:45 (15 min) [Short-term variability of the newly discovered transient X-ray binary MAXI J1820+070](#) (**Holger Stiele**, C)
- 17:00 (15 min) [A numerical model for computing emission spectra and light curves from the top surface of relativistic jet.](#) (**Ruben Farinelli**, C)
- 17:15 (15 min) [Outflows from neutron-star mergers: the case of GW170817/GRB170817A](#) (**Antonios Nathanail**, C)
-

Friday 26 March

SESSION 11 - Friday 26 March (9:00 - 10:40)

Current and next-generation facilities related to Theseus science (Chair Andrea Santangelo)

- 09:00 (20 min) [The SVOM mission for the study of the transient sky](#) (**Bertrand Cordier**, I)
- 09:20 (20 min) [Einstein Probe](#) (**Weimin Yuan**, I)
- 09:40 (20 min) [THESEUS precursors: HERMES Technologic and Scientific Pathfinders](#) (**Fabrizio Fiore**, I)
- 10:00 (20 min) [High-z gamma-ray bursts unraveling the dark ages and extreme space-time mission - HiZ-GUNDAM](#) (**Daisuke Yonetoku**, I)
- 10:20 (20 min) [eROSITA on SRG - The New X-ray All-sky Survey](#) (**Peter Predehl**, I)

10:40 (20 min) Coffee Break

SESSION 12 - Friday 26 March (11:00 - 12:45)

Current and next-generation facilities related to Theseus science (Chair Piero Rosati)

- 11:00 (20 min) [The Gamow Explorer: A Gamma-Ray Burst Observatory to Study the High Redshift and Multi-Messenger Universe](#) (**Nicholas White**, I)
- 11:20 (20 min) [The enhanced X-ray Timing and Polarimetry mission](#) (**Marco Feroci**, I)
- 11:40 (15 min) [The CAMELOT Constellation of Nanosatellites for Gamma-Ray Burst Observations](#) (**Jakub Ripa**, C)
- 11:55 (15 min) [A novel gamma-ray detector configuration](#) (**Roi Rahin**, C)
- 12:10 (15 min) [The event rate density of extragalactic high-energy transients](#) (**Hui Sun**, C)
- 12:25 (20 min) [AGILE and GRBs: 13 years of observations](#) (**Alessandro Ursi**, I)

12:45 (75 min) Lunch Break

SESSION 13 - Friday 26 March (14:00 - 15:40)

Observatory and additional science (Chair Stephane Basa)

- 14:00 (20 min) [Observatory Science with THESEUS](#) (**Andrew Blain**, I)
- 14:20 (20 min) [VHE emission from GRBs in the THESEUS era](#) (**Francesco Longo**, I)

- 14:40 (20 min) [Observing the accretion state of accreting black holes with THESEUS.](#) (**Maria Caballero-Garcia**, I)
- 15:00 (20 min) [GrailQuest & HERMES: Hunting for Gravitational Wave Electromagnetic Counterparts and Probing Space-Time Quantum Foam](#) (**Luciano Burderi**, I)
- 15:20 (20 min) [Studying the variability of X-ray binaries with THESEUS](#) (**Victor Doroshenko**, I)

15:40 (20 min) Coffee Break

SESSION 14 - Friday 26 March (16:00 - 17:30)

Observatory and additional science (Chair Filippo Frontera)

- 16:00 (15 min) [Exploiting the IRT-THESEUS Telescope to observe Quasars](#) (**Lindita Hamolli**, C)
- 16:15 (15 min) [Accretion flows around supermassive black holes.](#) (**Alex Markowitz**, C)
- 16:30 (15 min) [GRB 200415A: GRB or Masquerading Magnetar?](#) (**Oliver Roberts**, C)
- 16:45 (15 min) [Mrk 110 multiwavelength variability](#) (**Federico Vincentelli**, C)
- 17:00 (15 min) Concluding remarks (Lorenzo Amati)

(I - invited speaker, C - contributed talk)