9th European Space Cryogenics Workshop - Final Programme (20/06/2025)

Day 1: Tuesday, 24th June 2025

Location: Minatec - Grenoble

10h30-10h50: Opening Talk (CEA - S. Martin, ESA - O. Pin)

10h50-12h00: ***Session 1: ESA Future Needs in Space Cryogenics (chairpersons: Olivier Pin)***

1.1 Cryogenics Roadmap and Harmonisation 2024-2029 (ESA – M. Branco)

1.2 Future Needs for Space Cryogenics in Science (ESA- M. Linder)

1.3 Future Needs for Space Cryogenics in Quantum Applications (ESA – E. Wille)

1.4 Future Needs for Space Cryogenics in Earth Observation (ESA- A. Malavart)

12h00-13h00: *Lunch Break*

13h00-15h00: ***Session 2: Sub-Kelvin Cooling (chairpersons: Sylvain Martin)***

2.1 5-stage ADR cooler for the Athena space mission: toward the demonstration model (CEA – J.-M. Duval)

2.2 Magnetic characterization of lithium gadolinium tetrafluoride (GLF): towards a lighter ADR chain for ATHENA (CEA – A. Leon)

2.3 Performance characterization of a new Structural and Thermal architecture for a future spaceborne Closed-Cycle Dilution Refrigerator (IAS – V. Sauvage)

2.4 Superfluid ^{4}He circulation's application to the Closed Cycle Dilution Refrigerator (CCDR) (CEA – R. Dorne)

15h00-15h30: *Break*

15h30-18h00: ***Session 3: Pulse Tube Coolers (chairpersons: Ivan Charles)***

3.1 Air Liquide Pulse Tube and Active Cooling Overview (ALAT – P.-O. Mine)

3.2 MTG Cryostat & Pulse tube Coolers Flight and tests Results (TAS – B. Collaudin)

3.3 Design and Testing of a low-noise high-frequency miniature pulse-tube cooler (Thales Cryogenics – J. Mullie)

3.4 Double inlet phase shift analysis on a 15K Stirling-type pulse tube cryocooler (CEA – L. Methivier)

3.5 Development and Testing of a High Power Pulse-Tube Compressor (ALAT – P.-O. Mine)

18h00: *Welcome Drink*

Day 2: Wednesday, 25th June 2025

09h00-10h30: **Session 4: Joule-Thomson and Brayton Coolers (chairpersons: Thomas Prouve)**

4.1 Development of the Structural and Qualification Models for the Ariel JT Cooler (RAL – M. Crook)

4.2 Helium Joule-Thomson Vapour Cooling (RAL – M. Hills)

4.3 High Efficiency recuperator for a Reverse Turbo-Brayton cryocooler (Absolut - E. Rehayem)

10h30-11h00: *Break*

11h00-12h00 **Session 5: Miniature Coolers and IDCA's (chairpersons: Thierry Trollier)**

5.1 Characterization of COTS rotary cryocoolers for space applications (CNES – L. Marelli)

5.2 Envision Venspec-H IDCA Thermal Performance Test (ESA – M. Branco)

13h00-14h00: *Lunch Break*

14h00-16h00: **Session 6: Cryostats and Integration Solutions (chairpersons: Jerome Andre)**

6.1 Thermal link activities at Absolut System (Absolut – T. Trollier)

6.2 Test facilities at Absolut System (Absolut – T. Hurot)

6.3 The characterization of the new CNES cryostat (SVOL) (CNES – A. Simone)

6.4 Qualification of thermal straps at cryogenic temperatures and challenges associated with the testing campaign (Azimut GmbH – M. Andreev)

15h30-16h00: *Break*

16h00-18h00: **Session 7: Cryogenics for Science (I) (chairpersons: Bernard Collaudin)**

7.1 Design and Analysis of ATHENA’s X-IFU Cryostat (AVS – S. Cavia)

7.2 Current thermal architecture of Athena-XIFU instrument (CNES – J. Andre)

7.3 Ariel Mission: Cryogenics Aspects, latest developments (ESA – T. Tirolien)

7.4 INTA Development for a 2K Low vibration-ground Cryostat (INTA – J. Torres)

19h00: *Conference Dinner*

Day 3: Thursday 26th June 2025

09h00-11h00: ***Session 8: Cryogenics for Space Transportation and Exploration (chairpersons: Jean-Marc Duval)***

8.1 Space Cryogenics for Propulsion: Future needs and State Of the Art (ESA – S. Matteini)

8.2 CRYSALIS - Cryogenic Storage and refuelling in-orbit demonstrator – status (Absolut – M. M. Dalban-Canassy / K. Blyth)

8.3 RTB coolers - Enabler for ZBO storage + Observation Missions (Absolut – M. Dalban-Canassy / K. Blyth)

8.4 LUNAQUA: A Prototype for Exploring Water Ice (Ih) Sublimation and O-H Isotopic Fractionation on Terrestrial and Extraterrestrial Environments (Luxembourg Institute of Science and Technology – M. Kumawat)

11h00-11h15: *Break*

11h15-12h15: ***Session 9: Cryogenics for Science (II) (chairpersons: Thierry Tirolien)***

9.1 Feedthrough with Low Thermal Parasitic Loads for Remote Cooling (AVS- D. Gray)

9.2 Thermal architecture of the NASA probe mission PRIMA with emphasis on the European PRIMAger instrument (CEA – T. Prouve)

12h15-12h30: *Final Word* (M. Branco / S. Martin) – followed by *Lunch Break*

End of Conference

14h00: *Visit to CEA facilities* (S. Martin)