

PROGRAMME



TUESDAY - April 8, 2025

09:00 - 09:30 | **Opening Ceremony | IIR Presentation**

A1 -Cryogenics in Physics, Instrumentation and Labs

09:30 - 10:30 | I - Cryogenics in Particle Physics

Chairs: Ralf Herzog & Tomas Kralik

09:30 | **0074** | Gahier Vanessa

Cryogenics for the High-Luminosity upgrade of the Large Hadron Collider (HL-LHC) at CERN:
Challenges towards installation and commissioning

09:50 | **0008** | Geynisman Michael

Lessons from commissioning of the cryogenic system for the Short-Baseline Neutrino Detector
at Fermilab

10:10 | **0038** | Aretio-Zárate Fernando

Mechanical design of the barrel electromagnetic calorimeter of the full detector concept ALLEGRO
in the FCC-ee collider

10:30 - 10:55 | Coffee Break

10:55 - 11:55 | II - Superconductivity and Magnets

Chairs: Tomas Kralik & Ralf Herzog

10:55 | **0028** | Fischer Egbert

Performance of the superconducting magnets, produced and tested at the JINR for the SIS100 of FAIR

11:15 | **0018** | Boehm Friederike

Optimization Tool for Cryogenic Mixed-Refrigerant Cycles Applied on HTS and Hybrid LTS Current
Leads

11:35 | **0016** | Arnsberg Jonas

Design and Optimization Studies of 10 kA Current Leads Cooled With a Single Cryogenic
Mixed-Refrigerant Cycle

11:55 - 12:45 | III - Cryogenics for Quantum Technologies

Chairs: Tomas Kralik & Ralf Herzog

11:55 | **0015** | Melhem Ziad | KEYNOTE TALK

Recent advances in Cryogenics for Quantum Technologies

12:25 | **0014** | Xu Changtong

A mixed refrigerant Joule-Thomson cryocooler for trapped-ion quantum chips

12:45 - 13:45 | Lunch

13:45 - 14:25 | IV - Cryogenics in Microscopy

Chairs: Ziad Melhem & Steffen Grohmann

13:45 | **0076** | Krzyzanek Vladislav

Cryogenic Electron Microscopy in Life Sciences and Soft Matter

14:05 | **0051** | Klyszejko Adriana L.

Enhanced cryogenic cooling for imaging of large samples by X-ray microscopy

14:25 - 15:25 | V - Cryocoolers

Chairs: Ziad Melhem & Steffen Grohmann

14:25 | **0036** | Khute Sahadasan

Development of a Low-Cost, High-Efficiency Beta-Type Stirling Cryocooler for LNG and Cryopreservation Applications

14:45 | **0052** | Klyszejko Adriana L.

Minimising the energy consumption of a gm cryocooler system by dynamically adjusting coldhead and compressor speed

15:05 | **0057** | Kroupa Martin

A reversed Brayton cycle application for laser amplifier cooling at ELI ERIC and its comparison with technology based on LN2

15:25 - 15:40 | Coffee Break

15:40 - 17:20 | VI - Cryostats & Thermal properties

Chairs: Andreas Kade & Jiri Frolec

15:40 | **0001** | Matveev Konstantin

Unsteady Modeling of Taconis Oscillations

16:00 | **0017** | Zeoli Morgane

Low-vibration cryogenic testbed for inertial sensor characterization

16:20 | **0004** | Han Sangmoo

Experimental Study for Improving Measurement Accuracy of Thermal Conductivity of Multi-Layer Insulation

16:40 | **0065** | Kuhn Moritz

Numerical simulation on thermal shrouds of a vacuum test chamber

17:00 | **0031** | Frolec Jiří

Thermal conductivity measurements of non-metallic samples at cryogenic temperatures

Commercial Presentations

17:20 - 17:35 | SUMITOMO (SHI) CRYOGENICS OF EUROPE GmbH

17:35 - 17:50 | Beyond Gravity Austria GmbH

WEDNESDAY - April 9, 2025

A2 -Liquefied Gases in Clean Fuel Industry and Applications

08:30 - 10:30 | VII - Hydrogen Liquefaction

Chairs: Vaclav Chrz & Christoph Haberstroh

08:30 | **0069** | Knoche Martin

Improved efficiency in hydrogen liquefaction with integrated precooled single mixed refrigerant

08:50 | **0044** | Byun Yuree

Comprehensive thermodynamic, techno-economic, and sensitivity analysis for efficiency optimization in hydrogen liquefaction

09:10 | **0002** | Chandratre Omkar

Development and operation of liquid helium dewar for helium refrigeration-cum-liquefier plant at IPR.

09:30 | **0039** | Kohut Vojtěch

The comparison of turboexpanders working with helium and hydrogen as a process medium for the cooling loop in the hydrogen liquefaction cycle

09:50 | **0034** | Buhlmann Jaron

Design and Technical Implementation of a Small-Scale Hydrogen Liquefier Based on the Pre-Cooled Linde-Hampson Cycle.

10:10 | **0058** | Ćwik Jacek

Magnetocaloric properties of selected laves phases compounds and their promise for hydrogen liquefaction

10:30 - 10:45 | Coffee Break

10:45 - 12:05 | VIII - Liquid Hydrogen Storage and Transportation

Chairs: Martin Lansky & Magnus Aa.Gjennestad

10:45 | **0003** | Schlotmann Alexander

Production of “green” nitrogen with liquid hydrogen

11:05 | **0050** | Campari Alessandro

Modelling of the consequences of accident scenarios involving liquid hydrogen equipment

11:25 | **0033** | Gjennestad Magnus Aa.

Analysis of thermal stratification and global heat and mass balance in cryogenic storage tanks

12:45 | **0010** | Harwege Finn

Testing of vacuum insulation panels for liquid hydrogen storage tanks

12:05 - 13:30 | Lunch

13:30 - 14:50 | IX - Insulation of Cryogenics Storage Tanks

Chairs: Christoph Haberstroh & Gregor Trommler

13:30 | **0062** | Heo Jin Young

Experimental study on emissivity measurement of mli reflector for the insulation enhancement of liquid hydrogen storage tank

13:50 | **0013** | Campari Alessandro

Thermo-Mechanical Assessment of a Novel Insulation Concept for Liquid Hydrogen Tanks

14:10 | **0070** | Hiemeyer Jochen

Performance of perlite vacuum insulation under atmospheric load at cryogenic temperature

14:30 | **0030** | Mukherjee Ritayan

Optimization of a Cryogenic Microsphere-based Variable Density Multilayer Insulation System for Vessel Leak Conditions

14:50 | **0007** | Eberwein Robert

Repeatable Testing of a Cryogenic Storage Tank with Variable Insulation Material in Fire Like Conditions

15:10 - 15:25 | Coffee Break

15:25 - 16:05 | X - Cryogenics of Cleaner Fuel Systems

Chairs: William Milligan & Iurii Symonenko

15:25 | **0042** | Jeongwon Kim

Technical Analysis and Economic Evaluation of Commercial Technologies for Onboard Carbon Capture, Liquefaction and Storage

15:45 | **0032** | Milligan William

The deployment of a fleet of LNG fuelling stations into the industrial internet of things

16:05 - 17:20 | XI - Rare Gases

Chairs: William Milligan & Iurii Symonenko

16:05 | **0063** | Hrudka Bohdan

Refrigeration supply of gas mixtures separation processes

16:25 | **0067** | Will Julian

Solubility of hydrogen in liquid helium – project progress and orientational experiments

16:45 | **0073** | Louis Jurgen

Cast valve bodies: welding and material selection to prevent hydrogen embrittlement

Commercial Presentations

17:05 - 17:20 | PBS Velká Bíteš

17:20 - 17:35 | Vorbuchner GmbH & Co. KG

17:35 - 17:40 | Break

17:40 - 19:30 | **Poster Session** - see the list of poster contributions below

THURSDAY - April 10, 2025

C1 -Cryogenics in Biology, Medicine and Health

08:20 - 09:20 | XII - Cell Cryopreservation in Small Volumes & Plant Cryobiology

Chairs: Barry Fuller & Rene Kretschmer

08:20 | **0005** | Miksche Ronald

Welded cryovials – a contribution to minimize contamination

08:40 | **0085** | Yurchuk Taisiia

Cryopreservation of Immature Bovine Cumulus-Oocyte Complexes Impairs in Vitro Maturation by Disrupting the Junctions between the Cells

09:00 | **0071** | Bobrova Olena

Cryopreservation of garlic basal plate tissues

09:20 - 09:25 | Short Break

09:25 - 10:05 | XIII - Cell Cryopreservation in Large Volumes

Chairs: Rene Kretschmer & Jiri Gregor

09:25 | **0046** | Fuller Barry

Cryopreservation at large scale : current and future perspectives for applied cryobiology

09:45 | **0029** | Mericka Pavel

The need of long-term storage of cryopreserved autologous haematopoietic progenitor cell in treatment of multiple myeloma and indications for HPC graft disposal

10:05 - 10:20 | Coffee Break

10:20 - 12:00 | XIV - Cryopreservation of Tissues and Organs

10:20 | **0061** | Girard Mauricio

C. Elegans cryopreservation by vitrification

10:40 | **0053** | Encabo Laura

Non-equilibrium vitrification for the cryopreservation of vascular tissue

11:00 | **0054** | Alcalá Enrique

Ultrasound rewarming of cryopreserved vessels

11:20 | **0025** | Mericka Pavel

The new european union substance of human origin (SOHO) regulation and necessary conditions of its implementation in the tissue establishment cryobank

11:40 | **0055** | Risco Ramon

Organ cryopreservation and ultrasound rewarming

12:00 - 13:15 | Lunch

13:15 - 15:00 | XV - Cryogenic Electron Microscopy

13:15 | **0064** | Urban Pavel

Cryogenic technologies for electron microscopy

13:35 | **0081** | Thomas Burg

Microfluid dynamics and cryofixation of samples for cryomicroscopy (TBC)

13:55 | **0077** | Nebesářová Jana

Tricks of preparing hydrated preparations for cryo-SEM

14:15 | **0078** | Pinkas Dominik

Challenges of Cryogenic Work with Biological Samples in Electron Microscopy

14:35 | **0080** | Křepelka Pavel

High resolution Cryo-SEM of biological samples

14:55 - 15:10 | Coffee Break

15:10 - 15:30 | XVI - Cryotherapy

15:10 | **0041** | Serrano José R.

Experimental optimization of a reverse brayton cycle for cryotherapy applications

15:30 - 15:35 | Break

15:35 - 16:00 | Closing Ceremony

16:15 | IIR Commission Members Meeting (on invitation)

19:30 - 22:30 | **Conference Dinner**

FRIDAY - April 11, 2025

Technical Excursions

09:00 - 12:00 |

Facility of Helium Liquefier System and Laboratories of Low Temperature Physics Department

10:30 - 13:30 |

Visit of the Cryochamber

Commission A1

0019 | Besnard Anaïs |

An overview of the latest developments on the Closed-Cycle Dilution Refrigerator for space applications

0020 | Mostytskyi Andrii

Closed cycle cryogenic system (cryomodule) with a cooling temperature of -150...-200C

0022 | Kumar Rahul

Salt pill design and optimisation for a Solid State refrigerator based on magnetocaloric effect.

0037 | Jo Hyun Chul

Status and issues of SCL2 cryogenic plant for raon heavy ion accelerator

0049 | Kumar Abhishek

A feasibility study for the small superconducting synchronous machine using 2G HTS tape

0051 | Klyszejko Adriana L. **(poster supporting a lecture)**

Enhanced cryogenic cooling for imaging of large samples by X-ray microscopy

0052 | Klyszejko Adriana L. **(poster supporting a lecture)**

Minimising the energy consumption of a gm cryocooler system by dynamically adjusting coldhead and compressor speed

0083 | Králík Tomáš

Simple cryogenic method for testing of electrical properties of copper and it alloys

0084 | Quirin Schneider

A Liquid-Free Test Setup to Investigate the Material Properties of Fiber Reinforced Composites at Cryogenic Temperatures

Commission A2

0006 | Patel Rakeshkumar

Design, architecture and testing of SCADA-based alarm monitoring system for the SST-1 cryogenic plant and distribution system

0027 | Park Inmyung

Experimental investigation on the valve boxes of superconducting linac 3 in RAON

0086 | Thomas Christopher Just

Concept and design of an lh2 tank test rig and its research potential at TUD Dresden university of technology

Commission C1

0021 | Mostytskyi Andrii

Autonomous cryosurgical unit for cryodestruction of oncological neoplasms at temperatures down to -180C

0023 | Čechová Katarína

Impact of DMSO Concentrations on Cell Death Markers and Viability in Cryopreserved Human Keratinocytes

0024 | Osetsky Oleksandr

Combined cryosystems for general extreme human cryotherapy in the temperature range -120...-160°C

0066 | Lee Cheonkyu

Design and Performance Analysis of a Nitrogen Condensation Heat Exchanger Utilizing a 150 W-Class Cryocooler for Biostorage Processes

0072 | JungGil Lee

Experimental Performance Investigation of a Solid Desiccant Dehumidification System Using Metal-Organic Frameworks for Improving Cryogenic Refrigerator Performance

0079 | Láznička Tomáš

Microfluidic Chip for High-Pressure Freezing of Biological Samples for Cryo-Fib-Sem and Raman Micro-Spectroscopy Analysis