



Introduction and Summary

Cryogenic Safety – HSE Seminar



HSE

Occupational Health & Safety
and Environmental Protection Unit

9/20/2016

Cryogenic Safety - HSE Seminar 2016

2

CRYOGENIC SAFETY

HSE Occupational Health & Safety
and Environmental Protection unit

SEMINAR

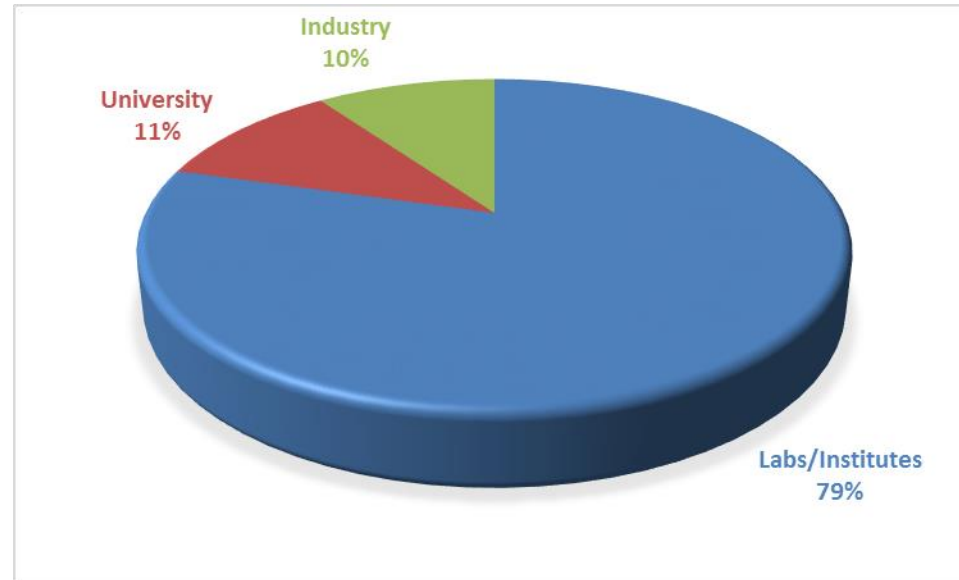
21-23 September 2016 CERN

Welcome !



Participation

- Total of 120 participants



Scientific Programme

- Total of 36 contributions
- 8 Sessions
 - Session 1 - Welcome
 - Session 2 - R&D in Cryogenic Safety (1/2)
 - Session 3- Risk assessment (1/2)
 - Session 4 - Knowledge Transfer
 - Session 5 - Applicability in Projects
 - Session 6 - Applicability of Rules & Regulations
 - Session 7 - R&D in Cryogenic Safety (2/2)
 - Session 8 - Risk assessment (2/2)

Indico

<https://indico.cern.ch/event/495194/timetable>

Scientific Programme – Day 1

Welcome Speech	<i>Simon Baird</i>	Controlled Cold Helium Spill Test in the LHC Tunnel at CERN	<i>Torsten Koettig</i>
503-1-001 - Council Chamber, CERN	09:00 - 09:15	503-1-001 - Council Chamber, CERN	14:00 - 14:20
Introduction and summary	<i>Andre Henriques</i>	Cryogenic Risk Assessments before Works in the LHC Tunnel	<i>Thomas Otto</i>
503-1-001 - Council Chamber, CERN	09:15 - 09:30	503-1-001 - Council Chamber, CERN	14:20 - 14:40
European standardization activities on safety of liquid helium cryostats	<i>Steffen Grohmann</i>	Approach to modeling of the fast energy discharge in cryogenic systems in the form of an electric arc	<i>Jaroslav Polinski et al.</i>
503-1-001 - Council Chamber, CERN	09:30 - 10:00	Cryogenic Hazard at ESS – strategy, safety studies and lessons learned	<i>Mr. Duy Phan</i>
Cryogenic safety organisation at CERN	<i>Carlos Arregui Rementeria</i>	503-1-001 - Council Chamber, CERN	15:00 - 15:20
503-1-001 - Council Chamber, CERN	10:00 - 10:20	Oxygen deficiency at CERN: Hazards, risks & mitigation measures	<i>Gunnar Lindell</i>
Coffee Break		503-1-001 - Council Chamber, CERN	15:20 - 15:40
503-1-001 - Council Chamber, CERN	10:20 - 10:45	Coffee Break	
Dynamic Modeling of the Pressure Increase in LHe Cryostats in Case of Incidents	<i>Carolin Heidt et al.</i>	503-1-001 - Council Chamber, CERN	15:40 - 16:05
503-1-001 - Council Chamber, CERN	10:45 - 11:05	Knowledge Transfer at CERN	<i>Zoe Lawson</i>
Numerical study of emergency cryogenics gas relief into confined spaces	<i>Dr. Ziemowit Malecha et al.</i>	503-1-001 - Council Chamber, CERN	16:05 - 16:25
503-1-001 - Council Chamber, CERN	11:05 - 11:25	Kryolize - KT Fund Project	<i>Andre Henriques et al.</i>
The PICARD Test Facility - KIT/CERN Collaboration on Cryogenic Pressure Relief Experiments	<i>Carolin Heidt et al.</i>	503-1-001 - Council Chamber, CERN	16:25 - 16:45
503-1-001 - Council Chamber, CERN	11:25 - 11:45	An Innovative Cryogenic Safety Valve Dimensioner - Kryolize®	<i>Mr. Sebastian Protz</i>
Quantification of heat flux in supercritical helium	<i>Mr. Eric Ercolani et al.</i>	503-1-001 - Council Chamber, CERN	16:45 - 17:05
503-1-001 - Council Chamber, CERN	11:45 - 12:05	Software used to size the safety devices	<i>Jean-Marc Poncet et al.</i>
Heat flux to the helium cryogenic system elements in the case of incidental vacuum vessel ventilation with atmospheric air	<i>Jaroslav Polinski et al.</i>	503-1-001 - Council Chamber, CERN	17:05 - 17:25

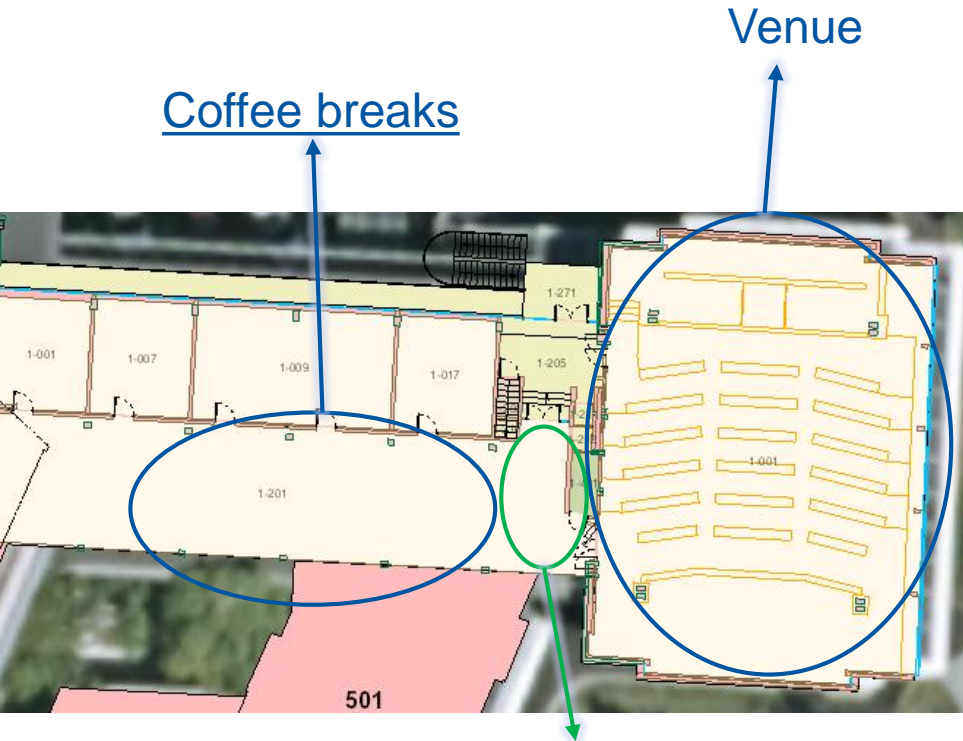
Scientific Programme – Day 2

Pressure relief protection in cryostats: CERN's experience on LHC and HIE Isolde	<i>Vittorio Parma et al.</i>
503-1-001 - Council Chamber, CERN	08:40 - 09:10
Safety aspects of superconducting magnets for Super-FRS	<i>Hans Guenter Mueller et al.</i>
503-1-001 - Council Chamber, CERN	09:10 - 09:30
Block 4 and Cluster D - Safety	<i>Vladislav Benda</i>
503-1-001 - Council Chamber, CERN	09:30 - 09:50
Cryogenic safety of the superconducting ALPI accelerator at INFN-LNL	<i>Ruggero Pengo</i>
503-1-001 - Council Chamber, CERN	09:50 - 10:10
Coffee Break	
503-1-001 - Council Chamber, CERN	10:10 - 10:35
Cryogenic Safety Rules and Guidelines at CERN	<i>Simon Marsh</i>
503-1-001 - Council Chamber, CERN	10:35 - 10:55
ISO and EIGA standards for cryogenic vessels and accessories	<i>Hervé BARTHELEMY</i>
503-1-001 - Council Chamber, CERN	10:55 - 11:25
CRAB cavity project – Mechanical design and safety	<i>Luca Dassa</i>
503-1-001 - Council Chamber, CERN	11:25 - 11:45
Strategy for conformity of non-standard cryogenic equipment	<i>Carlos Arregui Rementeria et al.</i>
503-1-001 - Council Chamber, CERN	11:45 - 12:05
Mechanical Designs for Relief Valves for Cryogenic Apparatuses and Installations	<i>Fridolin Holdener</i>
503-1-001 - Council Chamber, CERN	12:05 - 12:25

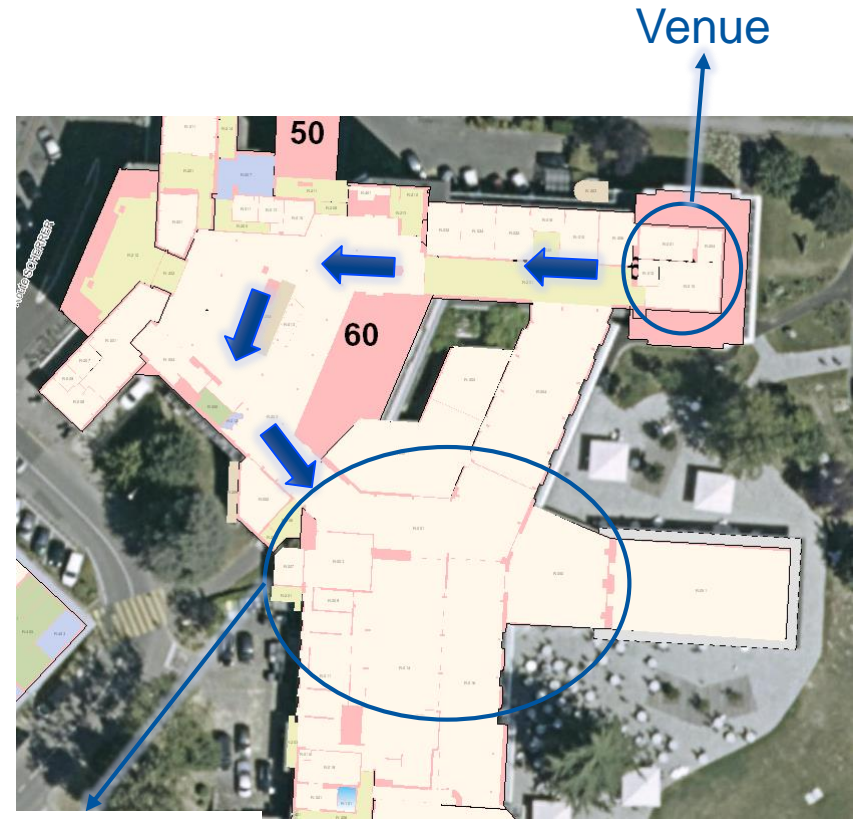
Safety in Cryogenics – Safety device sizing	<i>Mr. Eric Ercolani et al.</i>
503-1-001 - Council Chamber, CERN	14:00 - 14:20
Investigation of Two-Phase Flow in Cryogenic Pressure Relief Devices	<i>Christina Weber et al.</i>
503-1-001 - Council Chamber, CERN	14:20 - 14:40
Sizing of safety valves for multi-phase flow - ISO 4126 and state of knowledge	<i>Jürgen Schmidt</i>
503-1-001 - Council Chamber, CERN	14:40 - 15:00
Numerical study of saturation steam/water mixture flow and flashing initial sub-cooled water flow inside throttling devices	<i>QUANG Dang Le et al.</i>
The numerical evaluation of the minimal outlet area of the safety valve in the pipelines of cryogenic installations	<i>Dr. Ziemowit Malecha et al.</i>
Coffee Break	
503-1-001 - Council Chamber, CERN	15:40 - 16:05
Investigation of the cold process pipe rupture mechanism	<i>Maciej Dziewiecki et al.</i>
503-1-001 - Council Chamber, CERN	16:05 - 16:25
Risk assessment of cryogenic installations – implementation, applicability of methodologies and challenges at CERN	<i>Carlos Arregui Rementeria</i>
Risk Assessment tailored to cryogenics - LINDE approach	<i>Stefan Rath</i>
503-1-001 - Council Chamber, CERN	16:45 - 17:25
Application of risk-based inspection methods for cryogenic equipment	<i>Simon Marsh</i>
503-1-001 - Council Chamber, CERN	17:25 - 17:45



Breaks



Registration Desk



Restaurant R1

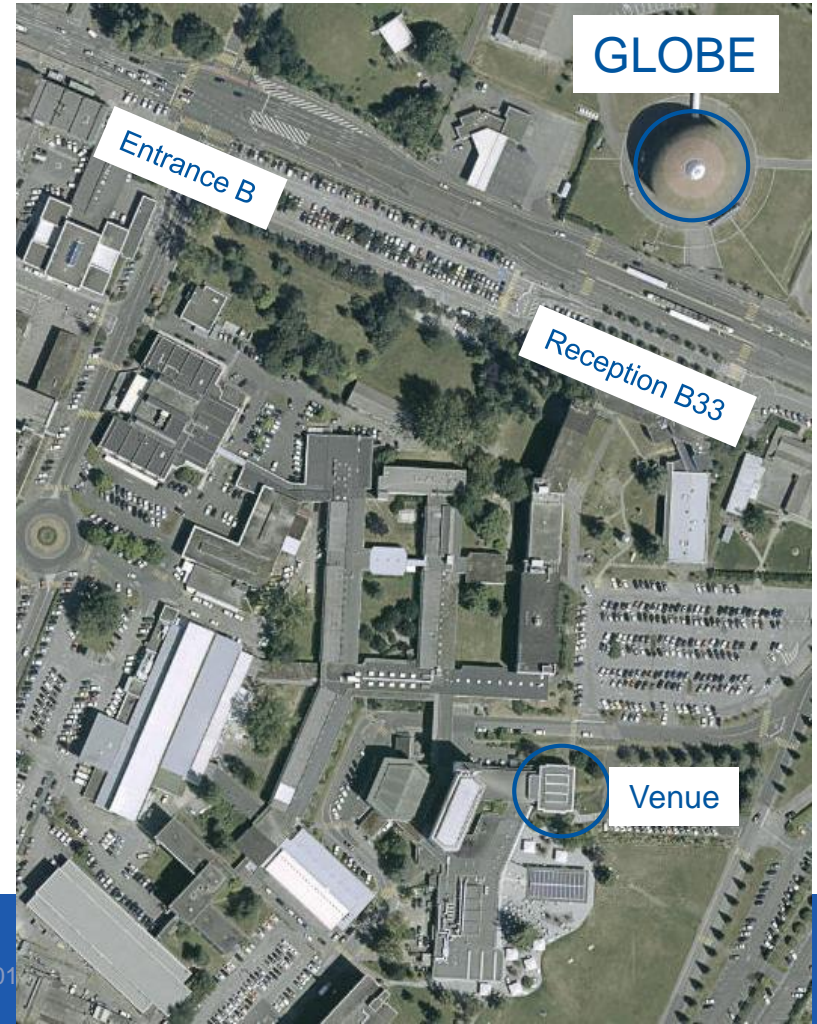
Social Events

- Evening of Day 1 – 21st September

18:00	Exhibition "Universe of Particles" <i>80-1-001 - Globe of Science and Innovation, CERN</i>	17:45 - 18:50
	Group photo - In front of the GLOBE <i>80-1-001 - Globe of Science and Innovation , CERN</i>	18:50 - 19:00
19:00	Get together - Cocktail dinner at GLOBE (limited subscriptions)	

Social Events

@ Globe of Science
and Innovation



Visits

- Friday morning - 23rd September
- Only open due external participants
- Visit Points
 - ATLAS experiment (*surface installations*)
 - Synchrocyclotron
 - CryoLab
 - SM18 exhibition
 - CCC 'CERN Control Center'

Visits

- RDV point is by Entrance B just outside CERN near the flags @ 8h
- Bring your conference badge with the respective colour code (green or red)
- More information will be given in “Wrap-up session – Day 2”

Cryogenic Safety awareness days

- Lunch time 21st and 22nd September
- Gather awareness for the general public on cryogenic Safety
- LN₂ ice cream
- Posters



At the entrance of R1



**CRYOGENIC
ICE CREAM DAYS
AT CERN**

CERN is a leader in cryogenic safety... and we're not bad either at making delicious ice cream using liquid nitrogen. Find out more, and sample the goods at lunchtime on 21 and 22 September in the 5000 lobby just outside restaurant 1.

With the LHC being the world's largest superconducting installation, it's not surprising that CERN is a world leader in cryogenic safety. On 21 and 22 September, over 150 experts in cryogenic safety will be coming to CERN to take part in CERN's first Cryogenic Safety Seminar, which aims to stimulate collaboration and further the state of the art in this increasingly important field. Come and hear more about the vital role played by CERN, and on the seminar days and 10 days, enjoy a taste of the deliciously light ice cream that results from rapid freezing with liquid nitrogen.

Building 500 lobby, 12:00-14:00 21 and 22 September.

Cryogenic ice cream!
ATTENTION - Allergies present:
Contains stabilisers and dairy products.
(May contain traces of nuts.)

Or...
Glaze cryoprotein!
ATTENTION - Allergies present:
Contains egg traces and dairy products.
(May contain egg traces (in froth & cones).)



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Enjoy !

