

3rd Announcement ECD 2017 & 2nd IWC-HTS Final Program and Opening of Registration

On behalf of the Cryogenics Society of Europe (CSE), the European Society on Applied Superconductivity (ESAS) and the High-Energy Physics network HEPtech, we are welcoming you to join the

European Cryogenics Days 2017 and the 2nd International Workshop on Cooling Systems for HTS Applications (IWC-HTS)

The attached [Technical Program](#) of the combined meeting has 36 interesting plenary oral contributions and 13 posters. The meeting is now open for [Registration](#).

The 2nd International Workshop on Cooling Systems for HTS Applications is organised in conjunction with the European Cryogenics Days 2017 in Karlsruhe, Germany, on September 13-15, 2017. This meeting is preceding the European Conference on Applied Superconductivity (EUCAS) taking place at CERN, Geneva, September 17-21. The workshop is a follow-up of the 1st IWC-HTS held in October 2015 in Matsue, Japan. Its purpose is the effective exchange of up-to-date information on cryocooler and cryoplant developments for HTS applications, as well as state-of-the-art methods for the optimal integration of HTS applications and cooling systems.

Presentations and posters will be made available online. Proceedings will not be produced and therefore, no papers are expected to be submitted by the speakers.

Please refer to our website on <http://www.ecd-iwchts2017.kit.edu> for the [Technical Program](#) and further information. Post-deadline contributions may still be submitted to the organisers and may be added to the technical program as posters.

We sincerely look forward to welcoming you to Karlsruhe!

Steffen Grohmann, Marcel ter Brake and Bernhard Holzapfel
On behalf of the organising team

OVERALL SESSION TABLE

EUROPEAN CRYOGENICS DAYS / GENERAL MEETING OF THE CRYOGENICS SOCIETY OF EUROPE

II. INTERNATIONAL WORKSHOP ON COOLING SYSTEMS FOR HTS APPLICATIONS

EUROPEAN CRYOGENICS DAYS			II. INT. WORKSHOP ON COOLING SYSTEMS FOR HTS APPLICATIONS					
WEDNESDAY, 13 SEPTEMBER 2017			THURSDAY, 14 SEPTEMBER 2017			FRIDAY, 15 SEPTEMBER 2017		
Time	Activity	Length	Time	Activity	Length	Time	Activity	Length
08:00	Registration		08:00	Registration				
09:00	Opening	15m	08:45	Welcome to IWC-HTS	15m			
09:15	Cryogenics Society of Europe General Meeting	1h 40m	09:00	OR4-1	30m	09:00	OR7-1	30m
10:55	Coffee Break	30m	09:30	OR4-2	15m	09:30	OR7-2	15m
11:25	OR1-1	25m	09:45	OR4-3	15m	09:45	OR7-3	15m
11:50	OR1-2	25m	10:00	OR4-4	15m	10:00	OR7-4	15m
12:15	Q/A Session 1	15m	10:15	OR4-5	15m	10:15	OR7-5	15m
12:30	Lunch	90m	10:30	Coffee Break	30m	10:30	OR7-6	15m
14:00	OR2-1	25m	11:00	OR5-1	30m	10:45	Coffee Break	30m
14:25	OR2-2	25m	11:30	OR5-2	15m	11:15	OR8-1	30m
14:50	OR2-3	25m	11:45	OR5-3	15m	11:45	OR8-2	15m
15:15	OR2-4	25m	12:00	OR5-4	15m	12:00	OR8-3	15m
15:40	Q/A Session 2	20m	12:15	OR5-5	15m	12:15	OR8-4	15m
16:00	Interaction Break	1h	12:30	Lunch	90m	12:30	OR8-5	15m
17:00	OR3-1	25m	14:00	OR6-1	30m	12:45	Discussion	30m
17:25	OR3-2	25m	14:30	OR6-2	15m	13:15	Lunch	1h 15m
17:50	OR3-3	25m	14:45	OR6-3	15m	14:30	Bus Transfer (KIT Campus North)	30m
18:15	OR3-4	25m	15:00	OR6-4	15m	15:00	Technical Excursion Karlsruhe Tritium Neutrino Experiment KATRIN KIT Campus North	2h 30m
18:40	Q/A Session 3	20m	15:15	OR6-5	15m	17:30	Bus Transfer	30m
19:00	Exhibitors Welcome Reception	1h 30m	15:30	Coffee & Poster Session	2h	18:00	End of Workshop	
20:30	End of Day 1		17:30	Break	30m			
			18:00	Bus Transfer	30m			
			18:30	Conference Dinner	3h			
			21:30	Bus Transfer	30m			
			22:00	End of Day 2				

TECHNICAL PROGRAM – DAY 1

EUROPEAN CRYOGENICS DAYS WITH THE
GENERAL MEETING OF THE CRYOGENICS SOCIETY OF EUROPE

WEDNESDAY, 13 SEPTEMBER 2017		
08:00		Registration
09:00 – 09:15		Opening
09:15 – 10:55		Cryogenics Society of Europe – General Meeting Open to all, voting by CSE members only
10:55 – 11:25		Coffee Break
11:25 – 12:30		Session 1 – Cryogenics in Astrophysics
Session Chair:		Steffen Grohmann (KIT, Germany)
OR1-1	25m	Gerd Jakob (ESO, Germany) <i>Cryogenics at the Extremely Large Telescope (ELT)</i>
OR1-2	25m	Lionel Duband (CEA, France) <i>Sub-K cooling for space and ground-based telescopes</i>
Q/A	15m	Plenary discussion on Session 1
12:30 – 14:00		Lunch
14:00 – 16:00		Session 2 – Cryogenics in Particle Physics and Computing
Session Chair:		Dimitri Delikaris (CERN, Switzerland)
OR2-1	25m	Laurent Taviani (CERN, Switzerland) <i>The FCC project and its cryogenic challenges</i>
OR2-2	25m	David Montanari (Fermilab, United States) <i>Long-baseline neutrino facility (LBNF)</i>
OR2-3	25m	Adrian Zenklusen (Linde Kryotechnik, Switzerland) <i>ESS target moderator cryogenic plant process design</i>
OR2-4	25m	Hans Hilgenkamp (University of Twente, Netherlands) <i>Superconducting supercomputers and quantum computing</i>
Q/A	20m	Plenary discussion on Session 2
16:00 – 17:00		Interaction Break
17:00 – 19:00		Session 3 – Cryogenics in Transportation, Air Separation and Power Applications
Session Chair:		Pascale Dauguet (AirLiquide, France)
OR3-1	25m	Hiroyuki Ohsaki (University of Tokyo, Japan) <i>Review and update on MAGLEV</i>
OR3-2	25m	Mykhaylo Filipenko (Siemens, Germany) <i>Towards hybrid electric aircraft – killer application for HTS technology?</i>
OR3-3	25m	Limin Qiu (Zhejiang University, China) <i>Development of large-scale cryogenic air separation systems</i>
OR3-4	25m	Mathias Noe (KIT, Germany) <i>Cooling requirements for superconducting power cables</i>
Q/A	20m	Plenary discussion on Session 3
19:00 – 20:30		Exhibitors Welcome Reception
20:30		End of Day 1

TECHNICAL PROGRAM – DAY 2

II. INTERNATIONAL WORKSHOP ON COOLING SYSTEMS FOR HTS APPLICATIONS

THURSDAY, 14 SEPTEMBER 2017		
08:00		Registration
08:45 - 09:00		Welcome to IWC-HTS
09:00 – 10:30		Session 4 – Power Grid Applications
Session Chair:		Mathias Noe (KIT, Germany)
OR4-1	30m	Friedhelm Herzog et al. (Messer, Germany) <i>Liquid nitrogen operated cooling systems for superconducting power lines (invited)</i>
OR4-2	15m	Naoko Nakamura et al. (Mayekawa MFG, Japan) <i>Turbo-Brayton refrigerator of Yokohama HTS cable project</i>
OR4-3	15m	Steffen Kloeppe et al. (TU Dresden, Germany) – <i>Cooling Considerations for the Long Length HVDC Cables Cryostat within BEST PATHS Project</i>
OR4-4	15m	H.J.M. ter Brake et al. (University of Twente, Netherlands) – <i>SupernetNL program: 3.4 km 110 kV AC underground superconducting cable in the Dutch grid</i>
OR4-5	15m	Mike Staines et al. (Robinson Research Institute, New Zealand) – <i>Cooling systems for HTS transformers: Impact of cost, overload, and fault current performance expectations</i>
10:30 – 11:00		Coffee Break
11:00 – 12:30		Session 5 – Novel Machinery
Session Chair:		Fons de Waele (TU Eindhoven em, Netherlands)
OR5-1	30m	Thomas Reis et al. (Oswald, Germany) <i>Cryogenic challenges for different superconductive motor topologies (invited)</i>
OR5-2	15m	Jan Wiezoreck et al. (ECO5, Germany) <i>Cryogenic design of the EcoSwing 3.6 MW superconducting wind generator</i>
OR5-3	15m	Jiuce Sun et al. (KIT, Germany) – <i>Compact cryogen-free modular cooling system for large scale offshore superconducting wind turbines</i>
OR5-4	15m	Mingyao Xu et al. (SHI, Japan) <i>Development of High-capacity Single-stage GM Cryocoolers at SHI</i>
OR5-5	15m	Claus Hanebeck et al. (Vision Electric Super Conductors, Germany) <i>Cryogenics in high-current busbars and multistage cooled current leads</i>
12:30 – 14:00		Lunch
14:00 – 15:30		Session 6 – Small-scale Applications
Session Chair:		Marcel ter Brake (University of Twente, Netherlands)
OR6-1	30m	Cathy Foley et al. (CSIRO, Australia) <i>HTS SQUID systems for mineral prospecting (invited)</i>
OR6-2	15m	Alexei Kalaboukhov et al. (Chalmers University, Sweden) – <i>Operation of a high-Tc SQUID gradiometer with a two-stage MEMS-based Joule-Thomson micro-cooler</i>
OR6-3	15m	Christoph Pfeiffer et al. (Chalmers University, Sweden) <i>A liquid nitrogen-cooled cryostat for multichannel HTS magnetoencephalography</i>
OR6-4	15m	Tonny Benschop et al. (Thales Cryogenics, Netherlands) <i>Recent development in compact and reliable cryocoolers at Thales Cryogenics</i>
OR6-5	15m	Tetsuo Oka et al. (Niigata University, Japan) – <i>Attempt to generate uniform magnetic field by face-to-face magnet system containing HTS bulk magnets</i>
15:30 – 17:30		Coffee & Poster Session
Session Chair:		Steffen Grohmann (KIT, Germany)
17:30 – 18:00		Break
18:00 – 18:30		Bus Transfer
18:30 – 21:30		Workshop Dinner
21:30 – 22:00		Bus Transfer
22:00		End of Day 2

TECHNICAL PROGRAM – DAY 3

II. INTERNATIONAL WORKSHOP ON COOLING SYSTEMS FOR HTS APPLICATIONS

FRIDAY, 15 SEPTEMBER 2017		
09:00 – 10:45		Session 7 – Systems and Solutions
Session Chair:		Krzysztof Brodzinski (CERN, Switzerland)
OR7-1	30m	<u>Christopher Boyle</u> et al. (Fabrum Solutions, New Zealand) <i>Commercial cryocoolers for use in HTS applications (invited)</i>
OR7-2	15m	<u>Sastry V. Pamidi</u> et al. (Florida State University, United States) – <i>Opportunities and challenges for cooling HTS power applications with gaseous helium circulation</i>
OR7-3	15m	<u>Marc, Dhallé</u> et al. (University of Twente, Netherlands) <i>Superconducting magnetic density separation</i>
OR7-4	15m	<u>Jérôme Pellé</u> (GTT, France) <i>Membrane cryostats</i>
OR7-5	15m	<u>Rainer Soika</u> et al. (Linde Kryotechnik, Switzerland) <i>Cryogenic relief device sizing based on existing norms</i>
OR7-6	15m	<u>Chandra Sarkar Swapan</u> et al. (Jadavpur University, India) – <i>Performance studies of an indigenously built condenser for a reverse Stirling cycle based cryocooler</i>
10:45 – 11:15		Coffee Break
11:15 – 13:15		Session 8 – Heat Transfer and Modelling
Session Chair:		Christoph Haberstroh (TU Dresden, Germany)
OR8-1	30m	<u>John M. Pfothhauer</u> (University of Wisconsin, United States) <i>Recent advances in cryogenic pulsating heat pipes (invited)</i>
OR8-2	15m	<u>A.T.A.M. de Waele</u> et al. (TU Eindhoven, Netherlands / Oswald, Germany) <i>Capillary cooling of AC superconducting coils</i>
OR8-3	15m	<u>Romain Bruce</u> et al. (CEA, France) <i>Thermal performances of a meter-scale cryogenic pulsating heat pipe</i>
OR8-4	15m	<u>Eugen Shabagin</u> et al. (KIT, Germany) – <i>Calculation of temperature profiles and pressure drop in concentric three-phase HTS power cables</i>
OR8-5	15m	<u>David Gomse</u> et al. (KIT, Germany) <i>Numerical model of a micro-structured heat exchanger for cryogenic mixed refrigerant cycles</i>
Q/A	30m	Discussion and Closing
13:15 – 14:30		Lunch
14:30 – 15:00		Bus Transfer
15:00 – 17:30		Technical Excursion Karlsruhe Tritium Neutrino Experiment KATRIN (KIT Campus North)
17:30 – 18:00		Bus Transfer
18:00		End of Workshop