

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 <u>Friedhelm Herzog</u> et al. (Messer, Germany) <i>Liquid nitrogen operated cooling systems for superconducting power lines (invited)</i>
OR4-2	15m <u>Naoko Nakamura</u> et al. (Mayekawa MFG, Japan) <i>Turbo-Brayton refrigerator of Yokohama HTS cable project</i>
OR4-3	15m <u>Steffen Kloeppe</u> et al. (TU Dresden, Germany) – <i>Cooling Considerations for the Long Length HVDC Cables Cryostat within BEST PATHS Project</i>
OR4-4	15m <u>H.J.M. ter Brake</u> 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 <u>Mike Staines</u> 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 <u>Thomas Reis</u> et al. (Oswald, Germany) <i>Cryogenic challenges for different superconductive motor topologies (invited)</i>
OR5-2	15m <u>Jan Wiezoreck</u> et al. (ECO5, Germany) <i>Cryogenic design of the EcoSwing 3.6 MW superconducting wind generator</i>
OR5-3	15m <u>Jiuce Sun</u> et al. (KIT, Germany) – <i>Compact cryogen-free modular cooling system for large scale offshore superconducting wind turbines</i>
OR5-4	15m <u>Mingyao Xu</u> et al. (SHI, Japan) <i>Development of High-capacity Single-stage GM Cryocoolers at SHI</i>
OR5-5	15m <u>Claus Hanebeck</u> 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 <u>Cathy Foley</u> et al. (CSIRO, Australia) <i>HTS SQUID systems for mineral prospecting (invited)</i>
OR6-2	15m <u>Alexei Kalaboukhov</u> 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 <u>Christoph Pfeiffer</u> et al. (Chalmers University, Sweden) <i>A liquid nitrogen-cooled cryostat for multichannel HTS magnetoencephalography</i>
OR6-4	15m <u>Tonny Benschop</u> et al. (Thales Cryogenics, Netherlands) <i>Recent development in compact and reliable cryocoolers at Thales Cryogenics</i>
OR6-5	15m <u>Tetsuo Oka</u> 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 2

II. INTERNATIONAL WORKSHOP ON COOLING SYSTEMS FOR HTS APPLICATIONS

THURSDAY, 14 SEPTEMBER 2017	
15:30 – 17:30	Poster Session
Session Chair:	Steffen Grohmann (KIT, Germany)
P-01	<u>Qian Bao</u> et al. (SHI, Japan) <i>Development of a pneumatic GM cryocooler with dual-displacer</i>
P-02	<u>Lin Bian</u> et al. (Chinese Academy of Sciences, China) <i>Cryogenic system of the 3W1 superconducting wiggler magnet</i>
P-03	<u>Guido Consogno</u> et al. (WEKA, Switzerland) <i>Flow regulation of cryogenic fluids: Design of a high-rangeability control valve</i>
P-04	<u>Lucas B S da Silva</u> et al. (Universidade de São Paulo, Brazil) <i>MgB2 superconducting bulks with AlB2 doping</i>
P-05	<u>Vladimir Datskov</u> et al. (GSI, Germany) <i>2G HTS tape reliable protection in 250 A current leads</i>
P-06	<u>Fridolin Holdener</u> et al. (Shirokuma, Switzerland) <i>Valve actuated by electric stepper motor-based linear drive</i>
P-07	<u>Minaru Kawamura</u> et al. (Okayama University of Science, Japan) <i>Cooling and ac-losses in the superconducting super motor</i>
P-08	<u>Shane T. Keenan</u> et al. (CSIRO Manufacturing, Australia) <i>Large voltage modulation HTS 2D SQIF arrays operated on a single stage cryocooler</i>
P-09	<u>Yuzhe Lin</u> et al. (KIT, Germany) <i>CFD analysis of the regenerator performance of cryocooler under different accelerations</i>
P-10	<u>Alexey Pan</u> et al. (University of Wollongong, Australia) – <i>Enhancement of critical current density by large antidots in inhomogeneous arrays in YBa2Cu3O7 thin films</i>
P-11	<u>Jens Tamson</u> et al. (KIT, Germany) <i>Cryogenic PHAse EQUilibria Test Stand (CryoPHAEQTS)</i>
P-12	<u>Yanan Wang</u> et al. (Chinese Academy of Sciences, China) – <i>The effect of impedance on VM type thermal compressor output characteristics for obtaining liquid helium temperature</i>
P-13	<u>Chao Zhou</u> et al. (University of Twente, Netherlands) – <i>The design and analysis of a superconducting magnet system for magnetic density separation</i>
P-14	<u>Xiaotao Wang</u> et al. (TIPC, CAS, China) – <i>Numerical and experimental studies of a two-stage pulse tube cryocooler working around 20K</i>
P-15	<u>Sonja Schlachter</u> et al. (KIT, Germany) – <i>Design and performance of a conduction-cooled HTS magnet in the radio-blackout experiment COMBIT</i>
P-16	<u>Mohammad Yazdani-Asrami</u> et al. (Robinson Research Institute, New Zealand) <i>Heat transfer in HTS transformer and current limiter windings</i>
P-17	<u>Chao Wang</u> (Cryomech Inc., United States) <i>Large capacity cryocoolers and cold helium circulation systems for HTS applications</i>
P-18	<u>Michal Vojenčiak</u> et al. (IEE SAS Bratislava, Slovakia) <i>Forced flow cooling of HTS CORC cable used in superconducting coil</i>
P-19	<u>Moritz Kuhn</u> et al. (ILK Dresden, Germany) <i>Cooling system for a superconducting DC-rail</i>

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. Pfothenhauer</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