

Programme

08/21 Wednesday

10:00-22:00	Registration	Hotel Lobby (1st floor)
19:00-21:00	Welcome Reception	Grand Ballroom A (2nd floor)

08/22 Thursday

09:00-09:30	Opening Ceremony		Grand Ballroom A (2nd floor)
09:30-10:00	Plenary Session 1		Grand Ballroom A (2nd floor)
	Solid-State Energy Conversion: Applications and Perspectives Prof. Dr. Andrej Kitanovski, University of Ljubljana Chair: Prof. Fengxia Hu, Institute of Physics Chinese Academy of Sciences		
10:00-10:30	Coffee Break & Poster Session		
10:30-11:00	Plenary Session 2		Grand Ballroom A (2nd floor)
	Compression-Based Elastocaloric Cooling: Materials, Devices, and Systems Prof. Ichiro Takeuchi, University of Maryland Chair: Prof. Suxin Qian, Xi'an Jiaotong Univerisity		
11:00-11:30	Plenary Session 3		Grand Ballroom A (2nd floor)
	Thermoelectric Cooling Materials and Emerging Applications Prof. Jingfeng Li, Tsinghua University Chair: Prof. Suxin Qian, Xi'an Jiaotong Univerisity		
11:30-13:30	Lunch		Xin Cafe (2nd floor)
13:30-15:40	Session A1 Barocaloric Cooling and Materials Grand Ballroom A (2nd floor)	Session B1 Magnetocaloric Devices (1) Junior Ballroom A (1st floor)	Session C1 Magnetocaloric Materials (1) Junior Ballroom B (1st floor)
	Coffee Break & Poster Session		
16:00-18:45	Session A2 Elastocaloric Materials and Devices Grand Ballroom A (2nd floor)	Session B2 Magnetocaloric Devices (2) Junior Ballroom A (1st floor)	Session C2 Magnetocaloric Materials (2) Junior Ballroom B (1st floor)
	18:00-20:00		Dinner
21:00-22:00	IIR Solid State Cooling and Heating Group meeting		Dalian (3rd floor)

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Friday

09:00-09:30	Plenary Session 4 Grand Ballroom A (2nd floor) Electrocaloric Cooling for A Sustainable World - Where Are We Now? Prof. Qiming Zhang, Pennsylvania State University Chair: Prof. Xiaoshi Qian, Shanghai Jiao Tong University		
09:30-09:50	Coffee Break & Poster Session		
09:50-12:30	Session A3 Electrocaloric Materials and Devices Grand Ballroom A (2nd floor)	Session B3 Magnetocaloric Devices (3) Junior Ballroom A (1st floor)	Session C3 Magnetocaloric Materials (3) Junior Ballroom B (1st floor)
12:30-13:30	Lunch Xin Cafe (2nd floor)		
13:30-14:00	Plenary Session 5 Grand Ballroom A (2nd floor) Baotou Rare Earth Industry: A Strong Support for Magnetic Materials And Application Devices Prof. Dr. Huang Jiaohong, Baotou Research Institute of Rare Earths Chair: Prof. Dr. Andrej Kitanovski, University of Ljubljana		
14:00-14:20	Coffee Break & Poster Session		
14:20-16:30	Session A4 Optical cooling and Materials Grand Ballroom A (2nd floor)	Session B4 Magnetocaloric Devices (4) Junior Ballroom A (1st floor)	Session C4 Magnetocaloric Materials (4) Junior Ballroom B (1st floor)
16:30-17:00	Closing Ceremony Grand Ballroom A (2nd floor)		
19:00-21:00	Banquet 18:00 Gather in the Hotel Lobby (1st floor)		

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Saturday

09:00-12:00	Technical Tour 08:30 Gather in the Hotel Lobby (1st floor) Rare Earth Museum Lab in Baotou Research Institute of Rare Earths Inner Mongolia Northern Rare Earth Magnetic Materials Co., Ltd. Baotou Jimeng Magnetic Materials Co., Ltd.
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08/22 Thursday

Grand Ballroom A (2nd floor)

Session A1: Barocaloric Cooling and Materials

Chair: Prof. Fengxia Hu, Institute of Physics Chinese Academy of Sciences

13:30-13:50	Colossal barocaloric effects: refrigeration and heat storage (keynote) Prof. Bing Li , Shenyang National Laboratory for Materials Science (SYNL), Institute of Metal Research, Chinese Academy of Sciences
13:50-14:10	Design of barocaloric plastic crystals for room temperature solid-state refrigeration (171) (keynote) Prof. Hui Wang, Central South University
14:10-14:25	Research of Several Room-Temperature Barocaloric Composite Materials with High Thermal Conductivity Additives (37) Liutao Zhu, Southeast University
14:25-14:40	Colossal barocaloric effect reversibly driven by low pressure in 2D vdW plastic crystals (34) Yue Kan, Institute of Physics, Chinese Academy of Science

08/22 Thursday**Grand Ballroom A (2nd floor)****Session A2: Elastocaloric Materials and Devices**

Chair: Prof. Suxin Qian, Xi'an Jiaotong University

Prof. Huilong Hou, Beihang University

16:00-16:20	Caloric effect in NI-MN-SN-CO alloy prepared through additive manufacturing (180) (Keynote) Prof. Xuexi Zhang, Harbin Institute of Technology
16:20-16:40	A compact two-stage elastocaloric refrigerator with 20 K temperature span (87)(Keynote) Prof. Suxin Qian, Xi'an Jiaotong University
16:40-17:00	Additively manufactured high-performance elastocaloric materials and the strain glass transition (163)(Keynote) Prof. Huilong Hou, Beihang University
17:00-17:15	Elastocaloric effects in all-d-metal Heusler alloys (179) Assistant Professor Zhiyang Wei, Great Bay University
17:15-17:30	Experimental Research on Compression-driven Multi-layer Tubular Elastocaloric Regenerator (75) GuoQu Zhou, Xi'an Jiaotong University
17:30-17:45	Nonreciprocal heat transfer enabled elastocaloric cooling (72) Jiongjiong ZHANG, Southern University of Science and Technology
17:45-18:00	Advanced elastocaloric air cooling by coil-bending with an energy-efficient performance (58) Xueshi Li, The Hong Kong University of Science and Technology
18:00-18:15	Elastocaloric solid-state refrigeration device based on natural rubber: comparison of materials on a single stage setup (26) SION Marianne, Tohoku University
18:15-18:30	Design and analysis of an elastocaloric energy conversion device (14) Yao Wang, Xi'an Jiaotong University
18:30-18:45	Study of the Elastocaloric Effect of Natural Rubber Under Multiple Cycles (88) Yunzhao Zhang, Tianjin University of Commerce

08/23 Friday**Grand Ballroom A (2nd floor)****Session A3: Electrocaloric Materials and Devices**

Chair: Prof. Xiaoshi Qian, Shanghai Jiao Tong University

09:50-10:10	Colossal Electrocaloric Effect in High-Entropy Ferroelectric Working Bodies (181) (keynote) Prof. Xiaoshi Qian, Shanghai Jiao Tong University
10:10-10:30	Highly efficient thermal management materials and devices based on electrocaloric effect (57) (keynote) Prof. Rujun Ma, Nankai University
10:30-10:45	Thermoelectric cooling technology: material and applications (151) Prof. Min Zhou, Technical Institute of Physics and Chemistry, Chinese Academy of Sciences
10:45-11:00	Progress on Power Electronics for Electrocaloric Heat Pump Systems (150) Stefan Mönch(a,b), Richard Reiner(a), Michael Basler(a), Kareem Mansour(a), Daniel Grieshaber(a), Patrick Waltereit(a), Rüdiger Quay(a,c), Kilian Bartholomé(d) (a) Fraunhofer Institute for Applied Solid State Physics (IAF) (b) University of Stuttgart, Institute of Electrical Energy Conversion (IEW) (c) Albert Ludwig University of Freiburg, Department for Sustainable Systems Engineering (INATECH)(d) Fraunhofer Institute for Physical Measurement Techniques (IPM)
11:00-11:15	Effect of temperature variation rate on the life of thermoelectric devices in PCR instruments (4) Junhao Yan, Huazhong University of Science and Technology
11:15-11:30	Solid-state thermoelectric cooling based on high-performance bismuth tellurides-based alloys (175) Prof. Chenguang Fu, Zhejiang University
11:30-11:45	Effects of interfacial compounds inducing by Ag interlayer on the Bi₂Te₃-based thermoelectric thin film cooler (48) Zeyu Liu, Huazhong University of Science and Technology

08/23 Friday**Grand Ballroom A (2nd floor)****Session A4: Optical cooling and Materials**

Chair: Dr. Biao Zhong, Technical Institute of Physics and Chemistry, CAS

Prof. Jun Zhang, Institute of Semiconductors, CAS

14:20-14:40	The effect of doping Yb³⁺ concentration on laser cooling characteristics in LuLiF₄ crystal (153) (keynote) Dr. Biao Zhong, Technical Institute of Physics and Chemistry, CAS
14:40-15:00	Laser Cooling of Semiconductors: Progress and Perspective (70) (keynote) Prof. Jun Zhang, Institute of Semiconductors, CAS
15:00-15:20	Rare earth ions doped fluoride crystals with low phonon energy for laser-induced cooling (keynote) Shanming Li, Shanghai Institute of Optics and Fine Mechanics, CAS
15:20-15:35	Optical refrigeration in Yb³⁺: YAP crystal (138) Chaoyu Wang, East China Normal University
15:35-15:50	Spectroscopy and laser-induced cooling characteristics of 4%Yb³⁺: YAG crystals (129) Jiayi Zhang, State Key Laboratory of Precision Spectroscopy, East China Normal
15:50-16:05	Efficient solid-state laser cooling with excitation of nano-second pulses (82) Associate Professor Guangzong Dong, Tiangong University

08/22 Thursday**Junior Ballroom A (1st floor)****Session B1: Magnetocaloric Devices (1)**

Chair: Prof. Jun Shen, Beijing Institute of Technology

13:30-13:50	High-Performance Thermomagnetic Generator Controlled by a Magnetocaloric Switch (155)(keynote) Prof. Hu Zhang, University of Science and Technology Beijing
13:50-14:05	Exploring the tradeoff between magnetic circuit and thermal processes in thermomagnetic devices (126) Guilherme Hitoshi Kaneko, Meiji University
14:05-14:20	Advanced active magnetic regenerator with 3D mesh MnFePSi (125) Bowei Huang, Magneto B.V.
14:20-14:35	Numerical Simulation of Performance Influencing Factors of Active Magnetic Regenerators in the Temperature Range of 40~60 K (143) Yakun Liu, Beijing Institute of Technology
14:35-14:50	Machine Learning and high-throughput screening algorithms for optimization of the magnetocaloric effect in all-d Heusler alloys (165) Danil Baigutlin, Chelyabinsk State University
14:50-15:05	Oscillating Gadolinium thermal switch (152) Dr. Urban Tomc, University of Ljubljana
15:05-15:20	Room Temperature Magnetocaloric Materials (MnFe)_{1.9} (PSi) Fe-Rich Compounds for heat pump application (59) Hanggai H, Delft University of Technology

08/22 Thursday

Junior Ballroom A (1st floor)

Session B2: Magnetocaloric Devices (2)

Chair: Prof. Dr. Oliver Gutfleisch, Technical University of Darmstadt

16:00-16:20	On the magnetocaloric metrics under AC magnetic field (97) (keynote) Prof. Akhmed Aliev, Amirkhanov Institute of Physics of Dagestan Federal Research Centre, Russian Academy of Sciences
16:20-16:35	Simulation Research on Stages Matching and Timing Sequence Optimization of a Double-stage Adiabatic Demagnetization Refrigerator(ADR) in Ultra-low Temperature Range (116) Zhuo Chen, Beijing Institute of Technology
16:35-16:50	Numerical Optimization of salt pill in an adiabatic demagnetization refrigerator (113) Dr. Wenshuai Zheng, Beijing Institute of Technology
16:50-17:05	Improvements on the first magnetic cooling device produced in series: “Polaris” (62) Max Fries, MAGNOTHERM Solutions GmbH
17:05-17:20	Influence of Velocity Pattern of Heat Exchange Medium Flow on Enhancement of Temperature Span for An Active Magnetic Regenerator (78) Ren Matsushita, Meiji University
17:20-17:35	Comparison between Simulation and Measurements of an Apparatus for a Thermomagnetic Motor (77) Guilherme Hitoshi Kaneko, Meiji University
17:35-17:50	Successful integration of a Magnetic Refrigeration System into a refrigerated display cabinet: from simulations to first experimental results (66) Dr. Sergiu LIONTE, Magnoric

08/23 Friday**Junior Ballroom A (1st floor)****Session B3: Magnetocaloric Devices (3)**

Chair: Dr. Jingyuan XU, Karlsruhe Institute of Technology

09:50-10:10	TFORC studies of magnetocaloric materials: models, experiments and beyond (182) (keynote) Prof. Victorino Franco, University of Seville
10:10-10:30	Magnetic refrigeration: from room temperature to extremely low temperature (keynote) Prof. Zhenxing Li, Beijing Institute of Technology
10:30-10:45	Influence of the indium thermal interface on the heat transfer in mechanical thermal switch at cryogenics temperature and external magnetic field (74) Konstantin Kolesov, Kotelnikov Institute of Radioengineering and Electronics (IRE) of Russian Academy of Science
10:45-11:00	Large-scale magnetic cooling unit for industrial applications (64) Dr. Sergiu LIONTE, Magnoric
11:00-11:15	Giant irreversibility of the inverse magnetocaloric effect in the Ni₄₇Mn₄₀Sn_{12.5}Cu_{0.5} Heusler alloy (67) Assistant Professor Yurii Koshkidko, Institute of Low Temperature and Structure Research, Polish Academy of Sciences
11:15-11:30	A magnetocaloric cooling device with layering microchannel magnetic regenerators (69) Jierong Liang, MAGNOTHERM Solutions GmbH
11:30-11:45	Seasonal COP of a magnetocaloric heat pump for the built environment based on MnFePSi (33) Diego Pineda Quijano, Delft University of Technology

08/23 Friday**Junior Ballroom A (1st floor)****Session B4: Magnetocaloric Devices (4)**

Chair: Prof. Wei Dai, Technical Institute of Physics and Chemistry, CAS
 Prof. Yan WANG, Baotou Research Institute of Rare Earths

14:20-14:40	Magnetocaloric hydrogen liquefaction-From materials to prototypes (110) (keynote) Dr. Tino Gottschall, Helmholtz-Zentrum Dresden-Rossendorf
14:40-15:00	A full solid-state conceptual magnetocaloric refrigerator based on hybrid regeneration(19)(keynote) Yuan Lin, Institute of Physics, Chinese Academy of Sciences
15:00-15:15	Reversible Magnetocaloric Effect Characterized by Low-Cost Lock-In Infrared Thermography (68) Prof. Victorino Franco, University of Seville
15:15-15:30	Navigating the heat maze: a showcase tutorial of TCCbuilder software (5) Dr. Katja Klinar, University of Ljubljana
15:30-15:45	Comparative Performance Study of Active Magnetic Regenerative System using Mono/Hybrid Nanofluids (178) Sumit Kumar Singh, Gangneung-Wonju National University
15:45-16:00	Numerical and experimental study of a reversible thermomagnetic motor (63) Dr. Sergiu LIONTE, Magnoric
16:00-16:15	High frequency magnetocaloric cooling (144) Urban Tomc, University of Ljubljana

08/22 Thursday**Junior Ballroom B (1st floor)****Session C1: Magnetocaloric Materials (1)**

Chair: Dr. Tino Gottschall, Helmholtz-Zentrum Dresden-Rossendorf

Prof. Adler Gamzatov, Amirkhanov Institute of Physics of Dagestan Federal Research Centre of RAS

13:30-13:50	Magnetocaloric high-entropy alloys: prospects and challenges (183) (keynote) Dr. Jia Yan Law, University of Seville
13:50-14:10	Magnetocaloric materials for cryogenic application (159) (keynote) Xin Tang, National institute for Materials Science
14:10-14:25	Magnetic, structural, and magnetocaloric properties of Ni-Co-Mn-Ti Heusler alloys: Insights from ab initio and Monte Carlo approaches (111) Prof. Vladimir Sokolovskiy, Chelyabinsk State University
14:25-14:40	Smart thermoresponsive PNIPAM/FeRh composite activated by magnetocaloric effect for doxorubicin release (161) Dr. Abdulkarim Amirov, Amirkhanov Institute of Physics of Dagestan Federal Research Center, Russian Academy of Sciences
14:40-14:55	Thermomagnetic effect in (Mn,Fe)₂(P,Si,B): model, indirect measurements and direct tests (128) Dr. Francois GUILLOU, Inner Mongolia Normal University
14:55-15:10	Inverse Design of Magnetocaloric Materials: From high-throughput to machine learning(16) Wei Liu, TU Darmstadt

08/22 Thursday**Junior Ballroom B (1st floor)****Session C2: Magnetocaloric Materials (2)**

Chair: Prof. Victorino Franco, University of Seville

Prof. Bing Li, Shenyang National Laboratory for Materials Science (SYNL)

16:00-16:20	Structural, magnetic, and cryogenic magnetocaloric properties in the GdCoC compound (83) (keynote) Prof. Lingwei Li, Hangzhou Dianzi University
16:20-16:40	Dynamics of the irreversible inverse magnetocaloric effect in the Ni₄₇Mn₄₀Sn₁₂Cu₁ Heusler alloy in cyclic magnetic fields up to 8 T (95) (keynote) Prof. Adler Gamzatov, Amirkhanov Institute of Physics of Dagestan Federal Research Centre of RAS
16:40-16:55	High-entropy concept shifts the crossover critical point in magnetocaloric materials (93) Dr. Jia Yan Law, University of Seville
16:55-17:10	Study on Material Arrangement of Multi-Layered Active Magnetic Regenerator with Lanthanum Compound Materials (94) Mr. Yusuke Hanaoka, Meiji University
17:10-17:25	Magnetocaloric properties of polycrystalline sublimed dysprosium (91) Dr.Sc. Natalia Kolchugina, Russian Academy of Sciences
17:25-17:40	Formation of ferromagnetic clusters affecting the first-order phase transition in off-stoichiometric Fe-Rh (35) Alex Aubert, Functional Materials, TU Darmstadt
17:40-17:55	Study of the Effect of Microstructure and Configurational Entropy on Magnetocaloric Properties of High-entropy Amorphous Alloys (79) Prof. Lin Xue, Hohai University

08/23 Friday**Junior Ballroom B (1st floor)****Session C3: Magnetocaloric Materials (3)**

Chair: Dr. Jia Yan Law, University of Seville

Prof. Lingwei Li, Hangzhou Dianzi University

09:50-10:10	Martensitic transition and caloric effect in powder and powder-based-processed Ni-Mn-Sn multicaloric Heusler alloys (40) (keynote) Prof. Dr. Oliver Gutfleisch, Technical University of Darmstadt
10:10-10:25	Impact of fast-solidification on all-d-metal NiCoMnTi based giant magnetocaloric Heusler compounds (71) Dr. Fengqi Zhang, City University of Hong Kong
10:25-10:40	Production of LaFeSi alloys for high-end magnetic cooling applications (60) Dr. Hugo Vieyra, Vacuumschmelze GmbH & Co. KG
10:40-10:55	Effect of Si doping on the microstructure and magnetocaloric properties of Gd-based metallic microfibers (42) Shiyang Yu, Inner Mongolia University of Technology
10:55-11:10	Structural and magnetic disorder in Heusler alloys: Peculiarities of the electronic, magnetic, and vibrational properties of Ni(Co)-Mn-Ti vs. Ni-Mn-(In,Sn) (36) Olga Miroshkina, University of Duisburg-Essen
11:10-11:25	Rapid phase formation and large magnetocaloric effect in off-stoichiometric La-Fe-Si based alloys for near room temperature applications (109) Huang Xuan, South China University of Technology
11:25-11:40	La(Fe,Si,Mn)13HZ microparticles stability in different fluids for magnetic refrigeration systems(21) Wei Liu, TU Darmstadt
11:40-11:55	Laves phases for low temperature magnetocaloric applications (13) Sergey Taskaev, Chelyabinsk State University

08/23 Friday**Junior Ballroom B (1st floor)****Session C4: Magnetocaloric Materials (4)**

Chair: Prof. Akhmed Aliev, Amirkhanov Institute of Physics of Dagestan Federal Research Centre, Russian Academy of Sciences
 Prof. Hu Zhang, University of Science and Technology Beijing

14:20-14:40	Dissecting complexity of phase transitions in first-order multi-caloric materials(15) (keynote) Dr. Konstantin Skokov, Technische Universität Darmstadt
14:40-14:55	New versatile instruments to measure element-specific and macroscopic hysteresis at ID12 of the ESRF(22) Alex Aubert, postdoctoral researcher, Functional Materials, TU Darmstadt
14:55-15:10	Controlling microstructure of Gd-based amorphous alloys and its influence on magnetocaloric properties(30) Hangboce Yin, Ningbo Institute of Materials Technology and Engineering, Chinese Academy of Sciences
15:10-15:25	The role of Debye temperature in achieving large adiabatic temperature changes at cryogenic temperatures: a case study on Pr₂In(28) Wei Liu, TU Darmstadt
15:25-15:40	Influence of high-pressure heat treatment on magnetic and magnetocaloric effects in La_{0.75}Sr_{0.25}Mn_{0.9}Co_{0.1}O₃(177) Prof. Xiang Jin, Inner Mongolia Normal University, Baotou Teachers' College
15:40-15:55	The effect of thermal cycling on magnetocaloric properties of Fe₄₈Rh₅₂ alloy(112) Alexander Kamantsev, Kotelnikov Institute of Radioengineering and Electronics of RAS, Amirkhanov Institute of Physics of Dagestan Federal Research Centre of RAS