DCD 2026

7th International Seminar

Dagestan Caloric Days:

Functional Materials and Applications

27–31 May 2026, Manas, Dagestan, Russia

PROGRAM

Amirkhanov Institute of Physics of Dagestan Federal Research Centre of
the Russian Academy of Sciences
Kotelnikov Institute of Radioengineering and Electronics of
the Russian Academy of Sciences
Chelyabinsk State University

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27–31 May 2026,

Manas, Dagestan, Russia

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Zhao Zhiyuan, Moscow, Russia

Seminar schedule

27 MAY 2026

Arrival, accommodation and registration

28 MAY 2026

7^{00} – 9^{00}	Breakfast
9^{00} – 10^{45}	Session 1
10^{45} – 11^{00}	Coffee-break
11^{00} – 12^{00}	On-line Session 1
12^{00} – 14^{00}	Lunch
14^{00} – 15^{30}	Session 2
15^{30} – 15^{45}	Coffee-break
15^{45} – 15^{30}	Session 3
17^{30} – 18^{30}	Poster session
18^{30} – 19^{30}	Dinner

29 MAY 2026

CULTURAL PROGRAM

30 MAY 2026

7^{00} – 9^{00}	Breakfast
9^{00} – 10^{45}	Session 4
10^{45} – 11^{00}	Coffee-break
11^{00} – 12^{00}	On-line session 2
12^{00} – 14^{00}	Lunch
14^{00} – 15^{45}	Session 5
15^{45} – 16^{00}	Coffee-break
16^{00} – 18^{05}	Session 6
19^{30} – 23^{00}	Conference dinner

31 MAY 2026

DEPARTURE OF PARTICIPANTS

Thursday 28 MAY 2026

7^{00}-9^{00}	**Breakfast**
9^{00}	**Opening Session: Welcome Address and Introductory Remarks**
9^{00}-10^{45}	**Session 1** Chairman: Victor Victorovich Koledov, Akhmed Magomedovich Aliev
Invited 9^{00}-9^{20}	Ferromagnetic Shape Memory effect in Heusler alloys – 30 Years of Discovery Victor Victorovich Koledov
Invited 9^{20}-9^{40}	Ab initio and Monte Carlo study of magnetic, structural, and magnetocaloric properties of Ni–Mn–Sn–Cu Heusler alloy Vladimir Vladimirovich Sokolovskiy
Invited 9^{40}-10^{00}	Architecting the Magnetocaloric Future: From Rare-Earth and Mn-Based Alloys to Flexible Functional Materials for Sustainable Cooling Applications Ramamoorthy Nagalakshmi
10^{00}-10^{15}	Scaling Analysis of the Adiabatic Temperature Change in Alternating Magnetic Fields Akhmed Magomedovich Aliev
10^{15}-10^{30}	Dynamics of the magnetocaloric effect in $DyCo_2$ and $Dy_{0.25}Tb_{0.25}Ho_{0.25}Er_{0.25}Co_2$ alloys: frequency and cyclic stability Adler Gudretdinovich Gamzatov
10^{30}-10^{45}	Modelling of Force Interaction between an HTS Ring and a Coil in a Permanent Magnet Levitation System Dmitry Alexandrovich Kuzmin
10^{45}-11^{00}	**Coffee-break**

11^{00}-12^{00}	**On-line Session 1** Chairman: Adler Gudretdinovich Gamzatov
Invited 11^{00}-11^{20}	Magnetization dynamics in various magnetic films Dong-Hyun Kim
Invited 11^{20}-11^{40}	Magnetocaloric properties of melt-extracted Gd-Co and Er-doped Gd-Co crystalline/crystalline composite microwires Yuhai Qu
Invited 11^{40}-12^{00}	The Effect of Substitution of Mn by Pd on the Structure and Thermomagnetic Properties of the $Mn_{1-x}Pd_xCoGe$ Alloys (Where x = 0.03, 0.05, 0.07 and 0.1) Gebara Piotr
12^{00}-13^{00}	**Lunch**
13^{00}-14^{00}	**Free time**

14^{00}-15^{30}	**Session 2** Chairman: Robert Minislanovich Vakhitov
14^{00}-14^{15}	Correlation of Lattice Expansion, Phonon Softening, and Superconducting Critical Temperature in Pd2YSn Mariya Victorovna Matyunina
14^{15}-14^{30}	Trapped field profile in bulk high-temperature superconductor solenoid Konstantin Andreevich Kolesov
14^{30}-14^{45}	Numerical modelling of a multi-cascade magnetocaloric device operation Ivan Valer'evich Maltsev
14^{45}-15^{00}	Influence of thermo-mechanical treatment on the microstructure, magnetic and magnetocaloric properties of $Ni_{50}Mn_{18.5}Ga_{25}Cu_{6.5}$ alloy Ruslan Yunusovich Gaifullin

15^{00}-15^{15}	Torsion Actuator with Shape Memory Effect Anton Vasil'evich Nezhencev
15^{15}-15^{30}	The influence of magnetoelectric interaction on the spin-wave spectrum in thin helimagnetic films Anzhela Il'gisovna Samigullina
15^{30}-15^{45}	**Coffee-break**

15^{45}-17^{30}	**Session 3** Chairman: Irek Il'firovich Musabirov
15^{45}-16^{00}	Symmetry of phase transitions in Ni_2MnIn Aleksey Vital'evich Golovchan
16^{00}-16^{15}	Features of magnetic inhomogeneities in (111)-oriented garnet-ferrite films with flexomagnetoelectric effect Robert Minislanovich Vakhitov
16^{15}-16^{30}	Stretch-hysteresis of topological charge in the model of elastic ferromagnetic monolayer with strain-dependent DMI Aidar Gaisovich Nugumanov
16^{30}-16^{45}	The influence of temperature field on the relaxation time of order parameters during martensitic phase transition in Ni-Mn-In-V and Ni-Co-Mn-Ti alloys Evgeniy Vyacheslavovich Morozov
16^{45}-17^{00}	Experimental technique for studying the kinetics of the Heusler alloy $Ni_{50.5}Mn_{33.4}In_{15.6}V_{0.5}$ during the phase transition near the Curie point Denis Alexandrovich Karpukhin
17^{00}-17^{20}	Modelling of Force Interaction between an HTS Ring and a Coil in a Permanent Magnet Levitation System Dmitry Alexandrovich Kuzmin
17^{20} -17^{35}	Dynamics of the magnetocaloric effect in $DyCo_2$ and $Dy_{0.25}Tb_{0.25}Ho_{0.25}Er_{0.25}Co_2$ alloys: frequency and cyclic stability Adler Gudretdinovich Gamzatov

17^{30}-18^{30}	**Poster Session** Chairman: Petr Alexeevich Igoshev, Dmitry Dmitrievich Kuznetsov
P1	Localized phase of skyrmions in a ferromagnetic film with a defect Daniil Abdrakhmanov
P2	Direct measurements of adiabatic temperature change in $DyCo_2$ alloy in ultra-low magnetic fields Nurizhat Abdulkadirova
P3	Magnetocaloric effect of $Tb_{0.25}Dy_{0.25}Ho_{0.25}Er_{0.25}Co_2$ alloy in weak magnetic fields Madina Alieva
P4	Effect of alloying on the thermoelectric properties of the half-Heusler FeVSb alloy at low temperatures Akhmed Batdalov
P5	Temperature relaxation time of the elements of the gas thermal switch of a cryogenic magnetic refrigerator Olga Belova
P6	Electrocaloric effect during ferroelectric phase transition in ceramic samples $BaTiO_3$ Mariia Bybik
P7	Phase Stability and Martensitic Transformations in Ni-Co-Ti Heusler Alloys Kseniya Erager
P8	Stability of magnetic skyrmions in nanomodified films to the influence of external magnetic fields. Mikhail Filippov
P9	The effect of hydrostatic pressure on the magnetic and structural properties of the $Ni_{1.5}Co_{0.5}Mn_{1.375}Ti_{0.625}$ alloy Ravil Garipov
P10	Quantum thermal valve with magnetocaloric effect. Svetlana von Gratovski

P11	The study of Ferrimagnetic ordering and magnetocaloric effect in the Hubbard model for a simple cubic and a base-centered cubic lattices Petr Igoshev
P12	Oscillations of magnetic solitons in multilayer structures as a basis for creating a spin-wave generator Daniil Kabanov
P13	Relation between magnetic and magnetocaloric properties near the phase transition point in the La-Fe(Mn,Co)-Si alloy Anvar Kadirbardeev
P14	Elastocaloric effect in 3d-metals ribbons measured by thermal imager and ultrafast fiber-optical temperature sensor Aleksandr Kamantsev
P15	Machine Learning and Neural Network Methods for Magnetocaloric Materials Dmitry Kanurin
P16	Microwave response of VO_2 and $V_{0,98}W_{0,02}O_2$ powder materials in the 8–12 GHz microwave range in the phase transition region Danila Kazakov
P17	Magnetocaloric effect and magnetostriction in cyclic magnetic fields Lazer Khanov
P18	Investigation of the effect of aerodynamic drag on the damping of oscillations of an HTS cryostat on a magnetic track. Denis Kirillov
P19	Thermal expansion and microstructural evolution of a Ni-Mn-Ga-Si alloy following stepwise annealing of the deformed state. Kirill Kirillyuk
P20	Effect of Pressure on the Magnetocaloric Properties of $NiMn_{0.89}Cr_{0.11}Ge$ Alloys with Reduced Curie Temperature and Different Thermal History Oleg Kovalev

P21	Specific Features of Methods for Preparing the Double-Layered Cobaltite $GdBaCo_2O_{5.5}$ Oleg Kovalev
P22	Magnetocaloric effect in pseudo-binary $Gd_{0,9}Tb_{0,1}NiH_x$ hydrides with various hydrogen amounts Anastasia Kurganskaya
P23	Comparative Simulation of Halbach Cylinder with Ring Segments and Rectangular Prisms for Caloric Cooling Dmitry Kuzmin
P26	Experimental refrigeration cycles of a cryogenic magnetic refrigerator based on $GdNi_2$ alloy Alexey Mashirov
P27	Magnetostructural phase transitions in substituted manganese arsenide Victor Mitsiuk
P28	Magnetocaloric effect in Er and Ho in cyclic magnetic fields Abdula Mukhuchev
P29	Laboratory setup of a pulsed magnetometer for studying magnetic and magnetostructural phase transitions Nikita Nyrkov
P30	Production, microstructure and magnetocaloric effect of polycrystalline Ni-Co-Mn-Ti alloys with variable composition Mariia Orshulevich
P31	Effect of Metal Nanoparticles on the Mechanical Properties of Graphene Aerogels Elizaveta Rozhnova
P32	Rapidly quenched ribbons produced of quasi-binary TiNi-TiCu alloy for the production of refrigerators and heat pumps based on the elastocaloric effect. Nikolay Sitnikov
P33	Phase transitions in $Ni_{2,14}Mn_{0,81}Fe_{0,05}Ga$ Heusler alloy under external magnetic field and hydrostatic pressure Pavel Smerchanskiy

P34	Mechanical properties of stable austenitic and martensitic phases in Ni-Mn-Ga Heusler alloys: A first-principles study Yuliia Sokolovskaya
P35	Creation of amorphous-crystalline composites using extreme impact methods Roman Sundeev
P36	Interaction of Surface Plasmon-Polaritons with Magnetic Skyrmions in Co/Pt Heterostructures. Valentin Tolkachev
P37	Experimental study of the magnetocaloric effect in Ni-Co-Mn-Ti Heusler alloys and prospects for their application. Marina Utarbekova
P38	Landau–Khalatnikov description of magnetization relaxation effects near first-order phase transitions Anna Vashchenkova
P39	Partial phase transition and surface effects in a thin helimagnet/ferroelectric superlattices. Alina Yuldasheva
P40	Method for measuring magnetization in alternating magnetic fields Dibir Yusupov
P41	Influence of impurity phases on the magnitude and stability of the magnetocaloric effect in chromium (IV) oxide Zhao Zhiyuan
P42	Effect of heat treatment on the austenite microstructure and martensitic transformation of rapidly quenched ribbons of Heusler alloy $Ni_{37}Co_{13}Mn_{35}Ti_{15}$. Dmitry Kuznetsov
18^{30}-19^{30}	**Dinner**

Friday 29 MAY 2026

7^{00} - 9^{00}	**Breakfast**
9^{00} – 18^{00}	**CULTURAL PROGRAM**
18^{00} - 19^{30}	**Dinner**

Saturday 30 MAY 2026

7^{00}-9^{00}	**Breakfast**
9^{00} -10^{45}	**Session 4** Chairman: Mariya Victorovna Matyunina
Invited 9^{00}-9^{20}	Magnetomechanical response of martensitic transformation in Ni-Mn-Ga-Si alloys across various structural states Irek Ilfirovich Musabirov
Invited 9^{20}-9^{40}	Magnetic viscosity in materials with nonequilibrium transformations near magnetostructural phase transitions Aleksey Stepanovich Komlev
Invited 9^{40}-10^{00}	Transformation of kπ-skyrmions on columnar defects of the "potential well" type Robert Minnislamovich Vakhitov
10^{00}-10^{15}	Reversibility of the negative magnetocaloric effect during forward and reverse martensitic transitions in Heusler alloy $Ni_{36.5}Co_{13.5}Mn_{35}Ti_{15}$ Anvar Tavatovich Kadirbardeev
10^{15}-10^{30}	The modeling of a dynamic magnetocaloric effect in $(LaFe_{11.6}Si_{1.4})_{100-x}Cu_x$ (x=0, 5, 10, 15) alloy doped by Cu Petr Alexeyevich Igoshev
10^{30}-10^{45}	Magnetolevitation transport based on high-temperature superconductors: modeling of acceleration and braking systems Victor Victorovich Koledov
10^{45}-11^{00}	**Coffee-break**

11^{00}-12^{00}	**Session 5** Chairman: Vladimir Vladimirovich Sokolovskiy
Invited 11^{00}-11^{20}	Insight into half-metallicity and structure of $FeRhSb_{1-x}Z_x$ Heusler alloys Oksana Olegovna Pavlukhina
11^{20}-11^{35}	Tailoring magnetic and magnetocaloric properties in Ni-Co-Mn-Ti melt-spun ribbons via annealing Alexander Sergeevich Kuznetsov
11^{35}-11^{50}	Investigation of thermoelectric and magnetostructural properties of Heusller alloy $Ni_{14}Mn_{13}Sn_4W$ by DFT calculations Danil Moiseev
11^{50} -12^{05}	Phase diagrams of a four-component Ni-Co-Mn-Ti system Daniil Novokreshenov
12^{05}-12^{20}	**Group photo**
12^{20}-14^{00}	**Lunch**

14^{00}-15^{45}	**On-line Session 2** Chairman: Aleksandr Pavlovich Kamantsev
Invited On-line 14^{00}-14^{20}	Hysteresis and Kinetics of 1st Order Phase Transitions in Heusler Alloys Under High Magnetic Fields Elvina Temirbolatovna Dilmieva
Invited On-line 14^{20}-14^{40}	Magnetocaloric effect of sublimated dysprosium in high steady and pulsed magnetic fields Yurii Sergeevich Koshkidko
Invited On-line 14^{40}-15^{00}	Magnetocaloric effect and magnetostriction of medium-entropy Tb-Dy-Ho(Er)-Co alloys with Laves phase structure Irina Semenovna Tereshina
15^{00}-15^{15} On-line	The influence of defects in nanomodified films on the properties of magnetic skyrmions Mikhail Aleksandrovich Fillipov
15^{15}-15^{30} On-line	Machine Learning and Neural Network Methods for Magnetocaloric Materials Dmitry Aleksandrovich Kanurin
15^{30}-15^{45} On-line	Ground state of Mn3Al Heusler compound: Insights from ab initio Mikhail Aleksandrovich Zagrebin
15^{45}-16^{00}	**Coffee-break**
16^{00}-18^{00}	**On-line Session 3** Chairman: Dmitry Aleksandrovich Kuzmin
16^{00}-16^{15} On-line	Heating Systems for Actuation of Shape Memory Alloy Nanomechanical Devices Aleksey Prokunin Vitalievich
16^{15}-16^{30} On-line	To possibility of magnetic field quanta using for coherent caloritronics Georgiy Izmailov

Invited 16^{30}-16^{50} On-line	Multistimulus magnetic refrigeration: from materials to cooling cycles Dmitry Yurevich Karpenkov
16^{50}-17^{05} On-line	A phenomenological model for multi-stimulus magnetic refrigeration: ΔT_{ad} for second-order phase transitions Mark Vladimirovich Zheleznyi
17^{05}-17^{20} On-line	Confined Crystallization of Patterned $MAPbBr_{3-x}Cl_x$ Microcrystals Oleksandr Ivashenko
17^{20}-17^{35} On-line	Polarization curve and power density of plant bioelectrochemical system with different agricultural crops Tatiana Eduardovna Kuleshova
17^{35}-17^{50} On-line	Temperature profile of the plant-environment system under natural conditions and intensive light culture Tatiana Eduardovna Kuleshova
17^{50}-18^{00}	**CLOSING CEREMONY**
20^{00}-23^{00}	**Conference Dinner**

Sunday 31 MAY 2026

$7^{00} – 9^{00}$	**Breakfast**
9^{00} - 10^{00}	**Free time**
11^{00} -14^{00}	**Departure of the seminar participants**