

III Russian Conference on Magnetohydrodynamics

List of accepted talks (Version: May 23, 2018)

Section 1. Fundamental Problems of Magnetohydrodynamics

	Speaker	Title
1	Losev G.	Losev G., Khalilov R., Kolesnichenko I. Energy and spectral characteristics of MHD vortex flow
2	Mandrykin S.	Mandrykin S., Kolesnichenko I., Losev G., Frick P. Experimental study of the electrovortex flow generated by opposing point electrodes in a vertical cylindrical cell
3	Triaskin J.	Pavlov V.A., Triaskin J.V. Influence of shock wave on a weakly ionized gas
4	Yushkov E.	Yushkov E., Lukin A., Sokoloff D. Large-scale and small-scale processes in Kazantsev dynamo model
5	Allilueva A.	Allilueva A. Localized asymptotic solutions of the linerized MHD equations
6	Lukin A.	Lukin A., Yushkov E., Sokoloff D. Subcritical regimes of Kazantsev dynamo-model
7	Vodinchar G.	Vodinchar G.M., Kazakov E.A. Some generalizations of the Lorentz system as dynamo models
8	Giesecke A.	Giesecke A., Vogt T., Gundrum T., Stefani F. The precession dynamo experiment at HZDR
9	Andrievsky A.	Andrievsky A.A., Zheligovsky V.A., Chertovskih R.A. Negative magnetic eddy diffusivity caused by the oscillatory alpha-effect
10	Ryashchikov D.	Ryashchikov D.S., Molevich N.E., Zavershinskii D.I. Two-dimensional MHD wave patterns in thermally unstable plasma
11	Chertovskih R.	Chertovskih R.A., Rasskazov A., Zheligovsky V.A. Magnetic field generation by pointwise zero-helicity flows
12	Gupta A.	Gupta A., Ganesh R. Study of rotational shear waves in viscoelastic fluids
13	Kochurin E.	Kochurin E.A., Zubarev N.M. Wave breaking on the free surface of a liquid dielectric in tangential electric field: weakly and strongly nonlinear models
14	Belov S.	Belov S.A., Molevich N.E., Zavershinskii D.I. Alfvén waves amplification due to parametric interaction with magnetoacoustic waves in isentropically unstable fully-ionized plasma
15	Zavershinskii D.	Pichugin S.Yu., Ryashchikov D.S., Molevich N.E., Zavershinskii D.I. Condensation mode instability in partially ionized heat-releasing plasma
16	Allilueva A.	Allilueva A. Evolution of small localized perturbations in a well conducting fluid
17	Vinogradov D.	Teplyakov I.O., Vinogradov D.A., Ivochkin Yu.P. A study of the applicability of the electrodynamic approximation in the simulation of the electrovortex flow with the presence of an external magnetic field
18	Zikanov O.	Zikanov O., Xiang L. Modeling of rolling pad instability in liquid metal battery

- 19 **Wertgeim I.** Wertgeim I.I., Zaks M.A. Numerical modeling of dynamics in vortex lattices for plane MHD flows
- 20 **Tselishev V.** Tselishev V.Y., Smorodin B.L. The charge distribution in a flat capacitor in the presence of the diffusion and anonymous unipolar injection
- 21 **Chupin A.** Chupin A. Saturated dynamo in a partly helical flow in a channel
- 22 **Yavorsky N.** Yavorsky N.I. New exact solutions of MHD equations for the flow between two infinite discs. Spontaneous rotation
- 23 **Rani H.** Rani H.P., Naresh K., Rameshwar Y. Stability analysis of ekman boundary layer for the flow between parallel plates
- 24 **Banerjee S.** Banerjee S., Kritsuk A.G. Energy transfer in compressible MHD turbulence for isothermal self-gravitating fluids
- 25 **Teplyakov I.** Teplyakov I.O., Vinogradov D.A., Ivochkin Yu.P. Investigation of the Rossby vortices in the electrovortex flow in hemispherical geometry
- 26 **Shafarevich A.** Shafarevich A. Asymptotics of magnetic field in a well conducting fluid on a 2D surface of revolution

Section 2. Magnetohydrodynamic turbulence

	Speaker	Title
1	Golbraikh E.	Golbraikh E. On the turbulence of flows in the constant magnetic fields with small Stuart number
2	Titov V.	Titov V., Stepanov R. Helical effects in forced MHD turbulence
3	Yokoi N.	Yokoi N. Multi-scale analysis of turbulent transport in strongly compressive magnetohydrodynamic flow
4	Pavlinov A.	Pavlinov A., Denisov S., Noskov V., Stepanov R., Frick P. Pulsed flows of liquid sodium in a toroidal channel: grid-induced turbulence
5	Mizeva I.	Frick P., Mizeva I. MHD turbulence in spin-down flows of liquid metals
6	Verma M.	Verma M. Energy transfers in magnetohydrodynamics: perspectives from DNS and shell model
7	Sukhanovskii A.	Sukhanovskii A., Batalov V., Stepanov R., Frick P. Dynamics of a turbulent swirling flow in a toroidal channel
8	Stepanov R.	Stepanov R., Titov V., Plunian F., Verma M. Magnetic energy and helicity mode-to-mode transfers in a dynamo action

Section 3. Astrophysical and Geophysical Magnetohydrodynamics

	Speaker	Title
1	Sokoloff D.	Sokoloff D., Katsova M., Kitchatinov L., Moss D., Usoskin I. Can superflares occur on the Sun?
2	Kalinin A.	Kalinin A., Sokoloff D. Dynamo resonances in a simple dynamo model
3	Brestensky J.	Brestensky J., Filippi E., Soltis T. MHD and natural dynamos; magnetoconvection with anisotropic diffusion
4	Shibalova A.	Shibalova A., Obridko V., Sokoloff D. Intermittency of solar magnetic field and solar magnetic activity cycle
5	Reshetnyak M.	Reshetnyak M.Yu. Growth of the inner core and magnetic field generation
6	Stefani F.	Stefani F., Giesecke A., Weber N., Weier T. A tidally synchronized Tayler-Spruit type model of the solar dynamo
7	Mikhailov E.	Mikhailov E.A., Sibgatullin I.N. Turbulent motions in the outer rings of galaxies connected with the magnetic fields
8	Smirnova K.	Smirnova K., Mikhailov E., Sokoloff D. Magnetic fields of the outer galaxy rings that are perpendicular to the equatorial plane
9	Pipin V.	Pipin V. Stochastic excitation of large-scale nonaxisymmetric field in solar type dynamo
10	Mindubaev M.	Khachay Yu., Mindubaev M. A numerical scheme for modeling the formation of the MHD process in a growing Earth
11	Izmodenov V.	Izmodenov V.V. Kinetic-MHD modeling of the stellar/solar wind interaction with the local interstellar medium (LISM): effects of stellar and interstellar magnetic fields
12	Khaibrakhmanov S.	Khaibrakhmanov S.A., Dudorov A.E. Influence of Ohmic and ambipolar heating on thermal structure of accretion disks
13	Kuzanyan K.	Stepanov R., Kuzanyan K. Wavelet analysis of magnetic energy and current helicity in the solar photosphere using vector magnetographic observations
14	Starchenko S.	Starchenko S.V. Critical and ordinary hydrodynamic and magnetism of planetary interiors
15	Likhachev A.	Gubanov E.V., Likhachev A.P., Medin S.A. Quasi-periodic reconnection in the Earth's geomagnetic tail: simulation in 2D resistive MHD model
16	Starchenko S.	Starchenko S.V., Yakovleva S.V. Geodynamo estimations based on origin, evolution and probabilistic time analysis of Gauss multipoles
17	Smirnov A.	Smirnov A. Chiral asymmetry evolution in the early Universe for the case almost constantly helicity

Section 4. Applied Magnetohydrodynamics

	Speaker	Title
1	Mamykin A.	Mamykin A., Losev G., Kolesnichenko I. Impact on impurities in a flat MHD duct
2	Bolotin K.	Bolotin K., Shvydkiy E., Sokolov I., Sarapulov S. Experimental verification of numerical simulation of adapted MHD stirrer
3	Musaeva D.	Musaeva D., Baake E., Ilin V. Melt solidification during electromagnetic stirring: experimental investigation of a solid/liquid interface formation
4	Weber N.	Weber N., Ashour R., Herreman W., Horstmann G.M., Kelley D., Landgraf S., Nore C., Personnetaz P., Stefani F., Weier T. MHD of liquid metal batteries
5	Bryukhanova E.	Nikulin I., Perminov A., Bryukhanova E. Modeling of averaged metal flows in an alternating magnetic field with a radiation heatsink from a free surface
6	Nikulin I.	Nikulin I. Analysis of melt surface cleaning possibilities by controlling frequency and spatial distribution of alternating magnetic field
7	Proskurin V.	Proskurin V.A., Sagalakov M.A. A MHD flow in 90-degree bent channel
8	Yachikov I.	Yachikov I.M., Portnova I.V., Karandaev A.S. Behavior of the current-carrying melt exposed to the action of external vertical magnetic field in a direct current arc furnace bath
9	Kwak J.	Kwak J., Kim H.R. Optimization of outer core for end effect reduction of annular linear MHD pump
10	Smolyanov I.	Smolyanov I., Tarasov F., Sarapulov F. Research of shape duct of induction pump for purpose of pumping out liquid magnesium
11	Krauter N.	Krauter N., Stefani F. Immersed transient eddy current flow metering: a calibration-free velocity measurement technique for liquid metals
12	Shvydkiy E.	Shvydkiy E., Bolotin K., Byschkov S., Zaharov V. 3D simulation of particles transport in double side travelling magnetic field stirrer
13	Fomin A.	Fomin A.V., Guliashinov A.A. Electromagnetic stirring of the liquid core of crystallizing ingot
14	Sokolov I.	Sokolov I., Bolotin K., Kravtsov A. Design optimization of MHD stirrer for liquid silicon
15	Losev G.	Losev G., Philimonov A., Pavlinov A., Kolesnichenko I. Vortex flow of liquid metal under the influence of modulated magnetic field
16	Budaev V.	Budaev V.P., Fedorovich S.D., Lukashevsky M.V., Martynenko Yu.V., Gubkin M.K., Karpov A.V., Lazukin A.V., Shestakov E.A. Plasma magnetic trap of linear multi-cusp configuration — the component of a plasma propulsion rocket engine
17	Alemanly A.	Alemanly A., Francois M., Jeantet Ph., Poli G., Zeminiani E., Eckert S., Freibergs J., Brekis A. SpaceTRIPS
18	Karasev T.	Karasev T., Nikulin I., Perminov A. Numerical modeling of flows and surface stresses in melt-oxide scab system during induction heating
19	Khripchenko S.	Khripchenko S., Siraev R., Denisov S., Dolgikh V., Kolesnichenko I. Effect of MHD stirrer placement relative to crucible bottom on a liquid metal flow
20	Khripchenko S.	Khripchenko S., Siraev R., Denisov S., Dolgikh V., Kolesnichenko I. The flow of a liquid gallium alloy in a cylindrical crucible under the action of intermittent travelling and rotating magnetic fields

- 21 **Zibold A.** Zibold A.F. Peculiarity of Taylor's and wavy vortices initiation in the instability study of the conducting liquid flow, generated by a rotating magnetic field
- 22 **Frizen V.** Frizen V., Shvydkiy E., Kamaev D. Electromagnetic stirrer of molten metal with dual-frequency supply
- 23 **Räbiger D.** Räbiger D., Willers B., Eckert S. Flow structure optimization and the impact on the solidification structure
- 24 **Dolgikh V.** Dolgikh V., Pavlinov A. Investigation of the MHD-pump model with inclined partitions in the channel
- 25 **Chudnovsky A.** Chudnovsky A.Yu., Malinovsky V.S. 3D-stirring of melts in electrical arc furnaces
- 26 **Stepanov A.** Stepanov A., Pavlinov A., Kolesnichenko I., Dolgikh V. Conductive electromagnetic pump with partitions located perpendicular to the flow in the channel
- 27 **Filimonov A.** Filimonov A., Pavlinov A., Kolesnichenko I., Shvydkiy E., Khalilov R. Influence of modulated and steadily applied travelling magnetic field on liquid metal stirring
- 28 **Eckert S.** Eckert S. Application of electromagnetic fields in material processing, metallurgy, casting and crystal growth
- 29 **Khalilov R.** Khalilov R., Krauter N., Stefani F., Frick P., Pavlinov A., Kolesnichenko I., Teimurazov A. Magnesium level detection in a titanium reduction reactor
- 30 **Obukhov D.** I.V. Vitkovsky, M.M. Golovanov, I.R. Kirillov, K.A. Komov, S.A. Krizanovsky, D.M. Obukhov, G.V. Preslitsky, V.S. Federyaeva, V.T. Berikbosinov, D.V. Gusev, S.V. Ruhlin, V.S. Shorkin, S.N. Romashin
New requirements and approaches in development of electromagnetic pumps for liquid metal fast breeder reactors
- 31 **Krivilyov M.** Krivilyov M. Control of electromagnetically induced flow and its effect on microstructure formation in the space experiment PERITEKTICA (PARSEC) onboard of the ISS

Section 5. Magnetic Fluids and Their Applications

	Speaker	Title
1	Ivanov A.O.	Ivanov A.O., Elfimova E.A. Static magnetization of an ensemble of interacting superparamagnetic nanoparticles
2	Petrov D.	Petrov D.A., Mantsurov A.V., Zakhlevnykh A.N. Statistical theory of magnetic field behavior of liquid crystals doped with carbon nanotubes
3	Petrov D.	Skokov P.K., Petrov D.A., Zakhlevnykh A.N. Magneto-orientational response of liquid crystal suspensions of magnetically doped carbon nanotubes
4	Makarov D.	Makarov D.V., Novikov A.A., Zakhlevnykh A.N. Chiral magnetic liquid crystalline suspension in a rotating magnetic field
5	Makarov D.	Makarov D.V., Zakhlevnykh A.N., Khairtdinov D.F. Magnetic behavior of a nematic liquid crystal doped with spiral magnetic particles
6	Subbotin I.	Subbotin I.M. Mathematical modelling of an inverse ferrofluid emulsion: case of nonlinear ferrofluid magnetization
7	Novikov A.A.	Novikov A.A., Zakhlevnykh A.N. Helix unwinding in chiral liquid crystals doped with magnetic particles
8	Kramarenko Yu.	Kramarenko Yu.E., Paramonov E.I., Zverev V.S., Elfimova E.A. Influence of dipolar interactions on the magnetic susceptibility spectra of the ferrofluids
9	Zverev V.	Zverev V.S., Elfimova E.A., Ivanov A.O. Influence of dipole-dipole interactions on the characteristic times of Brownian magnetic nanoparticles response to the arbitrary time-varying field
10	Pelevina D.	Pelevina D.A., Naletova V.A., Turkov V.A. Lifting of magnetic and non-magnetic fluids over a magnetizable body in a uniform magnetic field
11	Solovyova A.	Solovyova A.Yu., Elfimova E.A. The initial magnetic susceptibility of polydisperse ferrofluids: new universal approach
12	Vtulkina E.	Vtulkina E.D., Elfimova E.A. Thermodynamics and phase separation in bidisperse dipolar hard spheres
13	Kuznetsov A.	Kuznetsov A.A. Equilibrium magnetization of a quasi-spherical cluster of single-domain particles
14	Lebedev A.	Lebedev A.V. Paradoxical increasing of magnetic fluid susceptibility in strong fields
15	Krauzin P.	Krauzin P.V., Zakhlevnykh A.N. Magnetic field induced biaxial order in nematic liquid crystals doped with magnetic nanoparticles
16	Krauzina M.	Bozhko A.A., Krauzina M.T., Sidorov A.S., Suslov S.A. Features of ferrocolloid convection in gravitational and magnetic fields
17	Kripachev A.	Storozhenko A., Stannarius R., Eremin A., Shabanova I., Kripachev A. Influence of viscosity on the behavior of suspensions containing magnetic nanoparticles in rotating magnetic field
18	Ivanov A.S.	Ivanov A.S. Magnetostatic energy of a ferrofluid drop in experimental studies
19	Khokhryakova C.	Khokhryakova C.A., Kostarev K.G., Paravina D.K. Surface waves in two-layered system induced by the magnetic field
20	Ambarov A.	Ambarov A.V., Zverev V.S., Elfimova E.A. The effects of interparticle dipole-dipole interactions on the magnetic susceptibility spectra of superparamagnetic particles
21	Burkova E.	Burkova E., Pshenichnikov A. Simulation of permanent magnet levitation in the magnetic fluid

- 22 **Raikher Yu.** Raikher Yu.L., Stepanov V.I. Dynamic magneto-optical effect caused by particle-matrix coupling in ferronematics
- 23 **Khokhryakova C.** Pshenichnikov A.F., Khokhryakova C.A., Lebedev A.V., Gilev V.G. The force acting on a nonmagnetic body in a magnetic fluid
- 24 **Korovin V.** Kazhan V.A., Korovin V.M. Influence of strong longitudinal uniform magnetic field on capillary instability of a cylindrical jet of magnetic fluid
- 25 **Radionov A.** Radionov A.V., Podoltsev A.D. The specific features of high-velocity magnetic fluid sealing complexes
- 26 **Abu-Bakr A.** Abu-Bakr A.F., Zubarev A.Yu. The influence of rotation magnetic field on interparticle interaction particles in magnetic hyperthermia
- 27 **Kolesnichenko E.** Kolesnichenko E.V., Kolchanov N.V. Dependence of magnetic fluid viscosity on concentration of solid particles and temperature
- 28 **Ryapolov P.** Polunin V.M., Ryapolov P.A., Ryabtsev K.S., Shabanova I.A, Sokolov E.A. Air cavity constrained by magnetic fluid in ‘magnetic vacuum’ of an annular magnet

Section 6. Soft Magnetic Matter and its Application-Oriented Aspects

	Speaker	Title
1	Chirikov D.	Chirikov D.N., Zubarev A.Yu. Shear modulus of magnetic elastomers with anisotropic structures
2	Merkulov D.	Merkulov D.I., Pelevina D.A., Naletova V.A., Turkov V.A. Experimental research of the multistability of bodies with a magnetizable elastomer
3	Vaganov M.	Vaganov M.V., Raikher Yu.L. Model of a magnetic elastomer with embedded multigrain magnetic particles
4	Musikhin A.	Zubarev A.Yu., Musikhin A.Yu. Shear modulus of isotropic ferrogels
5	Dobroserdova A.	Dobroserdova A.B., Sanchez P.A., Kantorovich S.S. The study of magnetoactive elastomers using the FORC method
6	Novak E.	Steinbach G., Schreiber M., Nissen D., Albrecht M., Novak E., Sanchez P.A., Kantorovich A., Gemming S., Erbe A. Self-assembly of colloidal particles with a magnetic coating
7	Minina E.	Minina E.S., Sanchez P.A., Kantorovich S.S., Kramarenko E.Yu. Mechanical properties of magneto-elastic coatings
8	Pyanzina E.	Pyanzina E., Novak E., Rozhkov D., Gudkova A., Sanchez P.A., Ronti M., Kantorovich S.S. Self-assembly in magnetic filament solutions
9	Rozhkov D.	Novak E., Rozhkov D., Pyanzina E., Kashpurova M., Sanchez P.A., Kantorovich S.S. Self-assembly of bidisperse supracolloidal magnetic polymers
10	Sanchez P.	Sanchez P.A., Stolbov O.V., Raikher Y.L., Kantorovich S.S. Theoretical modeling of hybrid magnetic elastomers
11	Kantorovich S.	Kantorovich S.S. Self-propelled magnetic filaments
12	BalasoIU M.	BalasoIU M., Bunoiu M., Kuklin A., Soloviov D., Bica I., Raikher Yu. Small-angle neutron scattering characterization of a magnetorheological elastomer with carbonyl iron microspheres
13	Zubarev A.	Zubarev A.Yu., Lopez-Lopez M.T. Internal structures and rheological properties of biological ferrogels
14	Ryzhkov A.	Ryzhkov A.V., Raikher Yu.L. Simulation of the response of magnetic polymersome in external magnetic field
15	Nadzharyan T.	Nadzharyan T.A., Kostrov S.A., Stepanov G.V., Kramarenko E.Yu. Comparative analysis of fractional rheological models for the purposes of describing the mechanical response of magnetoactive elastomers in magnetic fields
16	Stolbov O.	Stolbov O., Stolbova O., Raikher Yu. Macroscopic model of structure formation in magnetorheological elastomers

Section 7. Heat and Mass Transfer in Liquid Metals

	Speaker	Title
1	Belyaev I.	Belyaev I., Chernysh D., Luchinkin N., Razuvanov N. Influence of channel inclination on heat transfer of liquid metal flow
2	Belyaev I.	Belyaev I., Biryukov D., Razuvanov N., Sviridov V. Experimental investigation of liquid metal mixed convection affected by transverse magnetic field
3	Demin V.	Demin V.A., Mizev A.I., Petukhov M.I., Smyrov A.V. On longitudinal separation of a binary metal melt in an inclined thin capillary
4	Zhang X.	Zhang X., Zikanov O. Magnetoconvection in a vertical duct with downward flow and strong transverse magnetic field
5	Zhang X.	Zhang X., Shishkina O. Heat transfer in rotating Rayleigh–Bénard convection in pressured SF ₆
6	Teimurazov A.	Teimurazov A., Frick P., Weber N., Stefani F. Numerical simulations of liquid magnesium and magnesium salt convection in the titanium reduction reactor
7	Krasnov D.	Krasnov D.S., Belyaev I.A., Biryukov D.A., Listratov Y.I., Sviridov V.G. Instabilities in mixed convection at moderate and strong magnetic fields
8	Novikov A.O.	Novikov A.O., Sviridov V.G. Thermogravitation convection influence on heat transfer in the channel modeling the active zone of the brest nuclear reactor
9	Khalilov R.	Khalilov R., Kolesnichenko I., Mamykin A., Teimurazov A. Convection of Liquid sodium in a vertical cylindrical channel subject to nonuniform heating from above
10	Pavlinov A.	Kolesnichenko I., Pavlinov A., Khalilov R., Mamykin A., Frick P. Creation of homogeneous boundary conditions for experimental studies of sodium convection
11	Mandrykin S.	Mandrykin S., Teimurazov A. Numerical study of turbulent liquid metal convection in inclined cylinder of unit aspect ratio using large-eddy-simulation approach
12	Frick P.	Frick P., Sviridov V. Turbulent convective heat transfer in liquid metals
13	Kolesnichenko I.	Kolesnichenko I., Frick P., Khalilov R., Mamykin A., Pavlinov A., Shestakov A. Liquid sodium convection in an inclined cylinder of unit aspect ratio
14	Karasev T.	Karasev T., Teimurazov A. Numerical simulations of liquid magnesium turbulent convection using OpenFOAM code with the RANS approach
15	Listratov Y.	Tyalina N., Listratov Y. Numerical investigation of MHD heat transfer in a liquid metal upward duct flow with a coplanar magnetic field
16	Listratov Y.	Ahmedagaev R., Listratov Y. Mixed convection in horizontal pipe flow with a longitudinal magnetic field
17	Kotlyar A.	Kotlyar A.V., Listratov Y.I., Sviridov V.G. Hydrodynamics and heat transfer of molten salts in the fusion reactor TOKAMAK
18	Krylov A.	Krylov A.N., Rogozkin S.A., Fadeev I.D. Computational and experimental studies on the mixing process of sodium coolant flows with different temperatures downstream of a baffle in a channel
19	Pyatnitskaya N.	Pyatnitskaya N.Yu., Sviridov E.V., Razuvanov N.G., Melnikov I.A. Influence of the coplanar magnetic field on the liquid metal flow in a rectangular vertical channel under the influence of thermal load

- 20 **Sorokin A.** Sorokin A.P., Kuzina Yu.A. Hydrodynamics and heat transfer in pin bundles with sodium coolant
- 21 **Muite B.** Muite B.K. A Fourier pseudospectral code for solving the magnetohydrodynamic equations with internal heating
- 22 **Kostychev P.** Kostychev P.V., Razuvanov N.G., Sviridov V.G. Study of vertical liquid metal flow hydrodynamics and heat exchange along a rectangular section channel in a coplanar magnetic field
- 23 **Khlybov O.** Khlybov O.A., Lyubimova T.P. Effect of traveling magnetic field on mass transfer and dopant segregation during directional solidification of semiconductors
- 24 **Beznosov A.** Beznosov A.V., Bokova T.A., Bokov P.A., Pinaev S.S. Experimental investigations of magnetic-hydrodynamic resistance of flow of the lead-bismuth coolant in the transverse magnetic field
- 25 **Shishkina O.** Shishkina O., Zwirner L. Confined inclined thermal convection in low-Prandtl-number fluids