

MODERN DEVELOPMENT OF MAGNETIC RESONANCE

program

2021

KAZAN * RUSSIA





MODERN DEVELOPMENT OF MAGNETIC RESONANCE

PROGRAM OF THE
INTERNATIONAL CONFERENCE

KAZAN, NOVEMBER 1–5, 2021

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Zavoisky Physical-Technical Institute, FRC Kazan Scientific Center
of RAS
Kazan Federal University

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CONFERENCE LOCATION

Academy of Sciences of the Republic of Tatarstan;
Zavoisky Physical-Technical Institute – Subdivision of the Federal
Research Center “Kazan Scientific Center of Russian Academy of
Sciences” (Kazan, Sibirsky tract 10/7)

TIME SCHEDULE

MONDAY, November 1st, 2021

Academy of Sciences of the Republic of Tatarstan (Kazan, ul. Baumana, 20)

09:00–14:00 Registration
11:00–13:00 Excursion
13:00–14:00 Lunch
14:00 Zavoisky Award 2021 Ceremony
15:30 Zavoisky Award 2021 Lectures
17:00 Opening of the Conference
17:10 Plenary Session
18:00 Welcome Party

TUESDAY, November 2nd, 2021

Zavoisky Physical-Technical Institute, FRC Kazan Scientific Center of RAS (Kazan, Sibirsky tract, 10/7)

09:00–09:40 Plenary Lecture
09:40–11:00 Session: Perspectives of Magnetic Resonance in Science and Spin Technology
09:40–11:00 Session: Strongly Correlated Electron Systems
11:00–11:20 Coffee Break
11:20–12:50 Session: Chemical and Biological Systems
11:20–13:00 Session: Strongly Correlated Electron Systems
13:00–14:30 Lunch
14:30–16:00 Session: Perspectives of Magnetic Resonance in Science and Spin Technology
14:30–16:00 Session: Other Applications of Magnetic Resonance
16:00–16:20 Coffee Break
16:20–17:00 Plenary Lecture
17:00–18:30 Session: Chemical and Biological Systems
18:30–19:00 Coffee Break
19:00–21:00 Session: Perspectives of Magnetic Resonance in Science and Spin Technology

WEDNESDAY, November 3rd, 2021

- 09:00–09:40 Plenary Lecture
09:40–11:10 Session: New Trends in Spin Chemistry
09:40–11:10 Session: Low-Dimensional Systems
and Nano-Systems
11:10–11:20 Coffee Break
11:20–13:10 Session: New Trends in Spin Chemistry
11:20–12:50 Session: Low-Dimensional Systems
and Nano-Systems
15:00 The Celebration of the 85th Birthday
of Kev M. Salikhov

THURSDAY, November 4th, 2021

- 09:00–09:40 Plenary Lecture
09:40–11:10 Session: Electron Spin Based Methods
for Electronic and Spatial Structure Determination
in Physics, Chemistry and Biology
09:40–11:10 Session: Chemical and Biological Systems
11:10–11:20 Coffee Break
11:20–12:50 Session: Magnetic Resonance Instrumentation
11:20–13:10 Session: Electron Spin Based Methods
for Electronic and Spatial Structure Determination
in Physics, Chemistry and Biology
13:00–14:30 Lunch
14:30–15:10 Plenary Lecture
15:10–16:20 Session: Magnetic Resonance Instrumentation
15:10–16:20 Session: Theory of Magnetic Resonance
16:20–16:40 Coffee Break
16:40–17:30 Session: Spin-Based Information Processing
17:30–18:40 Session: Magnetic Resonance Imaging
16:40–17:50 Session: Perspectives of Magnetic Resonance
in Science and Spin Technology
18:30–19:00 Coffee Break
19:00–21:00 Poster Session

FRIDAY, November 5th, 2021

09:00–09:40	Plenary Lecture
09:40–11:00	Session: Chemical and Biological Systems
09:40–11:00	Session: Modern Methods of Magnetic Resonance
11:00–11:20	Coffee Break
11:20–12:40	Session: Chemical and Biological Systems
11:20–13:00	Session: Modern Methods of Magnetic Resonance
13:00–13:15	Closing of the Conference
13:15–14:30	Lunch
18:00–20:00	Culture Program

SCIENTIFIC PROGRAM

MONDAY, November 1st, 2021

- 14:00 Zavoisky Award 2021 Ceremony
15:30 Zavoisky Award 2021 Lectures
J. Wrachtrup: Magnetic Resonance One Spin at a Time
S. V. Demishev: EPR Adventures in the Strongly Correlated
World: Quantum Materials and Quantum Critical System
17:00 Opening of the Conference

Plenary Session

Chair: A. A. Kalachev

- 17:10 *B. Blümich*: Compact Magnetic Resonance: Progress and
Applications
17:50 *M. K. Bowman, B. Bales, R. N. Schwartz*: CW and Pulse
EPR of Radicals in Solutions Undergoing Exchange
18:00 Welcome Party

TUESDAY, November 2nd, 2021

*Zavoisky Physical-Technical Institute, FRC Kazan Scientific Center
of RAS (Kazan, Sibirsky tract, 10/7)*

Hall A

Chair: K. M. Salikhov

Plenary Lecture

- 09:00 *G. Bodenhausen*

Session: Perspectives of Magnetic Resonance in Science and Spin Technology

Invited Talks

- 09:40 *D. McCamey*: Spin in Singlet Fission – Identification and
Dynamics of Singlet, Triplet and Quintet States
10:10 *A. Sojka, M. Šedivý, A. Solodovnik, A. Lagin, T. Láznička,
V. Santana, A. Marko, O. Laguta, P. Neugebauer*: High-
Frequency Rapid Scan Electron Spin Resonance Spectroscopy

Oral Talk

10:40 G. S. Kupriyanova, G. V. Mozzhukhin, I. G. Mershev, M. L. Smirnov, B. Z. Rameev: ^1H , ^{13}C NMR for Testing of Edible Oils

Hall B

Chair: G. B. Teitel'baum

Session: Strongly Correlated Electron Systems

Invited Talks

09:40 V. Kataev: Interplay of Magnetism and Topological Electronic Structure in Magnetic van der Waals Compounds

10:10 S. Okubo, K. Tsuneishi, H. Takahashi, Y. Saito, S. Hara, T. Sakurai, E. Ohmichi, K. Takahashi, H. Ohta, K. Nawa, T. Yajima, Y. Okamoto, Z. Hiroi: Multi-Frequency ESR Study of $S = 1/2$ Antiferromagnetic Chain with Staggered Field System $\text{KCuMoO}_4(\text{OH})$ by Force Detection ESR Method Using Single Microcrystal

Oral Talk

10:40 V. R. Shaginyan: Strongly Correlated Fermi Systems as New State of Matter

11:00–11:20 Coffee Break

Hall A

Chair: M. Bowman

Session: Chemical and Biological Systems

Invited Talks

11:20 E. G. Bagryanskaya, I. O. Timofeev, K. N. Bulygin, A. A. Malygin, D. M. Graifer, M. I. Meschaninova, A. G. Venyaminova, O. A. Krumkacheva, M. V. Fedin, L. Yu. Frolova, G. G. Karpova: DEER/PELDOR Study of Supramolecular Assemblies of Human Ribosome and RNAs

11:50 G. Buntkowsky: Parahydrogen Induced Polarization Enhanced NMR of Peptides and Biomarkers

12:20 K. H. Richardson, G. T. Hanke, M. M. Roessler: Insights into Redox Active Proteins in Respiration and Photosynthesis from EPR Spectroscopy

Hall B*Chair: Yu. I. Talanov***Session: Strongly Correlated Electron Systems**

Oral Talks

- 11:20 *D. V. Popov, T. P. Gavrilova, I. V. Yatsyk, M. A. Cherosov, E. M. Moshkina, V. A. Shustov, R. M. Eremina*: Magnetic Properties of $\text{Mn}_{1.5}\text{Co}_{1.5}\text{BO}_5$ Ludwigite Compound
- 11:40 *E. Vavilova, T. Salikhov, M. Iakovleva, T. Vasilchikova, I. Shukhaev, V. Nalbandyan, A. Vasiliev, E. Zvereva*: Nonstoichiometry, Ground State and Temperature Transformation of the Frustrated Magnet $\text{Li}_{0.8}\text{Ni}_{0.6}\text{Sb}_{0.4}\text{O}_2$
- 12:00 *Yu. A. Sakhratov, A. Ya. Shapiro, H. D. Zhou, A. P. Reyes, L. E. Svistov*: High-Field Magnetic Structure of the Triangular Antiferromagnet $\text{RbFe}(\text{MoO}_4)_2$ Studied by ^{87}Rb NMR
- 12:20 *S. K. Gotovko, L. E. Svistov*: Influence of Electric Field on the Dynamics of the Multiferroic LiCuVO_4
- 12:40 *I. Gimazov, Yu. Talanov, G. Teitel'baum, R. Zaripov, K. Pervakov, V. Pudalov*: Electron Spin Resonance of the Eu^{2+} Ions in 122-type Iron Pnictides

13:00–14:30 Lunch

Hall A*Chair: M. R. Gafurov***Session: Perspectives of Magnetic Resonance in Science and Spin Technology**

Invited Talks

- 14:30 *M. Fittipaldi, A. Cini, M. Perfetti, B. Kintzel, M. Böhme, W. Plass, R. Sessoli*: Spin-Electric Coupling in a Copper(II)-Based Spin Triangle Revealed by Electric-Field-Modulated Electron Spin Resonance Spectroscopy
- 15:00 *A. Kuzhelev, D. Dai, V. Denysenkov, T. Prisner*: New DNP Results in Liquid State Samples at High Magnetic Fields
- 15:30 *J. Matysik*: Update on Radical Pairs and Photo-CIDNP to Commemorate Prof. Konstantin Ivanov

Hall B

Chair: *N. M. Suleimanov*

Session: Other Applications of Magnetic Resonance

Invited Talks

14:30 *M. V. Fedin*: Spin-Probe EPR of Nanoporous Materials

15:00 *V. I. Volkov, A. V. Chernyak, N. A. Slesarenko*: Selective Ionic and Molecular Transport in Nanochannels of Sulfonation Exchange Membranes Studied by NMR

Oral Talk

15:30 *V. M. Murzakaev, N. B. Belousova, A. V. Bragin, D. A. Kisler, V. D. Skirda, A. A. Alexandrov, Ya. V. Fattakhov*: Possibilities for Integrating Dielectric Scanning and Nuclear Magnetic Logging to Assess the Type of Fluid in the Well

16:00–16:20 Coffee Break

Hall A

Chair: *J. Wrachtrup*

Plenary Lecture

16:20–17:00 *B. M. Hoffman*: Radical SAM Enzymes, and the Jahn-Teller Effect Hiding in Plain Sight

Session: Chemical and Biological Systems

Invited Talks.

17:00 *B. E. Bode, S. Chhabra, M. Bühl, D. J. Cole-Hamilton, D. Smith, A. J. B. Watson*: Recent EPR Insights into Earth Abundant Metal Catalysis

17:30 *A. van der Est, A. Agostini, D. K. Matta, B. Ferlez, T. Biskup, S. Weber, J. Golbeck, D. Carbonera*: Spin Polarized Triplet States and Radical Pair States in Heliobacterial Reaction Centres

18:00 *P. Z. Qin*: CRISPR Target Recognition Investigated Using Site-Directed Spin Labeling: Mechanistic Insights Informing Applications

18:30–19:00 Coffee Break

Hall A

Chair: *V. F. Tarasov*

Session: Perspectives of Magnetic Resonance in Science and Spin Technology

Invited Talks

- 19:00 *S. S. Eaton, G. R. Eaton, J. E. McPeak*: Relaxation of Lanthanide Ions in Acidic Aqueous Ethanol Solutions
- 19:30 *T. Leshina, A. Ageeva, P. Kuznetsova, V. Plyusnin, A. Doktorov*: Influence of the Optical Configuration of a Chiral Linked System on its Reactivity
- 20:00 *P. G. Baranov, A. N. Anisimov, I. D. Breev, V. A. Soltamov, R. A. Babunts, S. B. Orlinskii*: Optically Active Spin Centers in Silicon Carbide for Sensing and Quantum Computing Applications: a Study of Double Resonances
- 20:30 *Ch. Boehme*: Electrically Detected Non-Linear Electron Paramagnetic Magnetic Resonance

WEDNESDAY, November 3rd, 2021

Hall A

Chair *B. Blümich*

Plenary Lecture

- 09:00 *G. Jeschke, L. Esteban-Hofer*: Integrative Structural Ensemble Biology Based on EPR-Derived Distance Distributions

Session: New Trends in Spin Chemistry

Invited Talks

- 09:40 *A. Yurkovskaya, H.-M. Vieth, O. Morozova, K. Ivanov*: New Trends in CIDNP Study
- 10:10 *D. V. Stass, V. A. Bagryansky, Yu. N. Molin*: Simple Rules for Resolved Level Crossing Spectra in Magnetic Field Effects on Reaction Yields
- 10:40 *K. Maeda*: Pulse and AWG-based RF Magnetic Field Effects on Chemical Reaction Kinetics

Hall B

Chair: *R. M. Eremina*

Session: Low-Dimensional Systems and Nano-Systems

Invited Talk

09:40 *A. I. Smirnov, K. Yu. Povarov, T. A. Soldatov, Ren-Bo Wang, O. A. Starykh*: Interaction of Spinons in $S = 1/2$ Chain Antiferromagnet Detected by ESR

Oral Talks

10:10 *V. N. Glazkov, Yu. V. Krasnikova, S. C. Furuya, K. Yu. Povarov, D. Blosser, A. Zheludev*: Anisotropy-Induced Soliton Excitation in Magnetized Strong-Rung Spin Ladders

10:30 *E. B. Fel'dman, E. I. Kuznetsova, S. G. Vasil'ev*: Multiple-Quantum NMR in Quasi-One-Dimensional Zigzag Spin Chains of Hambergite

10:50 *A. M. Ziatdinov*: Edge Electronic States in Nanostructured Graphene Oxide Derivatives: ESR, CESR and Magnetic Susceptibility Studies

11:10–11:20 Coffee Break

Hall A

Chair *B. Blümich*

Session: New Trends in Spin Chemistry

Invited Talk

11:20 *N. N. Lukzen*: The Review of Magnetic Field Effects in Charge Separated States of Rigidly Linked Donor-Acceptor Dyads

Oral Talks

11:50 *K. M. Salikhov*: New Paradigm of Spin Exchange Opens Up New Horizons

12:10 *V. P. Kozinenko, A. S. Kiryutin, A. V. Yurkovskaya*: Modern Methods of Transferring Nuclear Polarization Induced by Parahydrogen Utilizing Ultra-Low Magnetic Fields

12:30 *M. Geniman*: Determination of the Reorganization Energy in Degenerate Electron Exchange Reactions Involving Short-Lived Radicals by the Method of Time-Resolved CIDNP

12:50 *D. A. Markelov, V. P. Kozinenko, S. Knecht, A. S. Kiryutin, A. V. Yurkovskaya, K. L. Ivanova*: Singlet-Triplet Conversion in Molecular Hydrogen and its Role in Parahydrogen Induced Polarization

Hall B*Chair: R. M. Eremina***Session: Low-Dimensional Systems and Nano-Systems**

Invited Talk

11:20 *I. Sudakov, E. Goovaerts, W. E. Wenseleers, J. L. Blackburn, J. G. Duque, S. Cambré*: Optically Detected Mmagnetic Resonance of Chirality Sorted and Partially Oriented Single-Walled Carbon Nanotubes

Oral Talks

11:50 *A. I. Gumarov, I. V. Yanilkin, I. A. Golovchanskiy, B. F. Gabbasov, R. V. Yusupov, R. I. Khaibullin, L. R. Tagirov*: FMR of Pd-Fe Alloy Films with Inhomogeneous Composition Profiles

12:10 *K. Tsiberkin, E. Kovycheva, A. Sosunov, R. Ponomarev, V. Henner*: Spin-Wave and Classical Modeling of Diluted Magnetic Composite

12:30 *A. R. Khisameeva, A. V. Shchepetilnikov, I. V. Kukushkin*: Electron Spin Resonance in a Strongly Correlated 2D Systems

15:00 The Celebration of the 85th Birthday of Kev M. Salikhov

THURSDAY, November 4th, 2021

Hall A*Chair: P. Neugebauer***Plenary Lecture**

09:00 *D. Goldfarb*: Liquid-Liquid Phase Separation of the N-Terminal Domain of CPEB4 via the Good Old CW EPR and the Help of DEER

Session: Electron Spin Based Methods for Electronic and Spatial Structure Determination in Physics, Chemistry and Biology

Invited Talks

09:40 *Y. Kobori*: Vibronic Spins in Singlet Fissions

10:10 *N. G. Romanov, R. A. Babunts, H. R. Asatryan*: Radiospectroscopy of Non-Kramers Tb³⁺ Ions in Yttrium Aluminum Garnet

- 10:40 *T. Hett, T. Zbik, S. Mukherjee, H. Matsuoka, W. Bönigk, D. Klose, Ch. Roullion, N. Brenner, S. Peuker, R. Klement, H.-J. Steinhoff, H. Grubmüller, R. Seifert, U. B. Kaupp, O. Schiemann*: Spatiotemporal Resolution of Conformational Changes in Biomolecules by Combining Pulsed Electron-Electron Double Resonance Spectroscopy with Microsecond Freeze-Hyperquenching

Hall B

Chair: V. N. Glazkov

Session: Chemical and Biological Systems

Invited Talks

- 09:40 *E. A. Konstantinova, E. V. Kytina, A. A. Dronov, A. I. Kokorin*: Spin Centers in Titania Nanotubes with Different Chemical Composition
- 10:10 *A. I. Kokorin, E. N. Golubeva*: Spin Exchange and Chemical Exchange in Biradicals
- 10:40 *S. A. Dzuba, E. A. Golysheva, A. S. Smorygina, V. V. Unguryan*: Double Electron-Electron Resonance Revealing Heterogeneity of Model Biological Membranes

11:10–11:20 Coffee Break

Hall A

Chair: V. E. Kataev

Session: Magnetic Resonance Instrumentation

Invited Talks

- 11:20 *H. Ohta, S. Okubo, E. Ohmichi, T. Sakurai, H. Takahashi, S. Hara, M. Akaki*: Multi-Extreme THz ESR: Current Status and Future
- 11:50 *H. Hirata*: Simultaneous Mapping of the Partial Pressure of Oxygen and pH Using Electron Paramagnetic Resonance
- 12:20 *E. Richards, A. Folli, G Magri, M. Barter, J. Harari, H. Choi, D. Slocombe, D. M. Murphy, A. Porch*: *In situ* MW Heating: Design Considerations of a Dual Mode X-band EPR Resonator

Hall B*Chair: S. I. Nikitin***Session: Electron Spin Based Methods for Electronic and Spatial Structure Determination in Physics, Chemistry and Biology**

Invited Talk

11:20 *V. Tarasov, K. Konov, R. Likerov, A. Sukhanov, A. Shestakov, I. Yatsyk, R. Eremina, Yu. Zavartsev, A. Kutovoy*: EPR-Spectroscopy of Monoisotopic $^{53}\text{Cr}^{3+}$ Ions in Orthosilicates Y_2SiO_5 and Sc_2SiO_5

Oral Talks

11:50 *F. Murzakhanov, D. Shurtakova, A. Alexandrov, A. Tajik, A. Vakhin, M. Gafurov, G. Mamin*: Relaxation Mechanisms of Intrinsic Paramagnetic Centers VO^{2+}/FR in Heavy Oil Asphaltenes Combined with HYSORE and DNP Measurements

12:10 *R. V. Yusupov, B. F. Gabbasov, I. N. Gracheva, A. A. Rodionov, S. I. Nikitin, D. G. Zverev, A. G. Kiiamov, D. G. Zverev, A. Dejneka, V. A. Trepakov*: EPR Studies of the Symmetry Lowering in the Cubic Phase of Strontium Titanate

12:30 *N. A. Chumakova, A. T. Rebrikova, A. Kh. Vorobiev, M. V. Koborobov, T. S. Yankova, M. V. Matveev, A. V. Kaplin, D. A. Astvatsaturov, D. S. Popov*: Molecular Organization of the Swelled Graphite Oxide and the Graphite Oxide Membranes According to Spin Probe Data

12:50 *V. A. Ulanov, R. R. Zainullin, T. A. H. Housheya, I. V. Yatsyk*: EPR of Crystalline $\text{Pb}_{1-x-y}\text{Cu}_x\text{GdyS}$ Semiconductor Alloy: Unusual Dependence of Resonant Lines Shapes on Microwave Power and Possible Reasons of the Effect

13:00–14:30 Lunch

Hall A*Chair: S. V. Demishev***Plenary Lecture**

14:30–15:10 *M. E. Smith*: Recent Advances in Multinuclear Solid-State NMR of Inorganic Materials

Session: Magnetic Resonance Instrumentation

Invited Talk

15:10 *A. Blank, Y. Artzi, N. Dayan*: ENDOR with ESR Micro-Resonators

Oral Talks

15:40 *R. A. Babunts, Yu. A. Uspenskaya, N. G. Romanov, S. B. Or-linskii, G. V. Mamin, E. V. Shornikova, S. Shendre, S. De-likanli, H. V. Demir, P. G. Baranov, D. R. Yakovlev, M. Bayer*: Magnetic Properties of Colloidal Core-Shell CdSe/(Cd,Mn) S Nanoplatelets Studied by High-Frequency EPR, ENDOR

16:00 *O. Tseytlin, A. Bobko, R. O'Connell, M. Tseytlin*: Rapid Scan EPR Imaging

Hall B

Chair: L. R. Tagirov

Session: Theory of Magnetic Resonance

Invited Talk

15:10 *A. G. Maryasov, M. K. Bowman* Static and Dynamic Vector Models in EPR of Anisotropic Centers

Oral Talks

15:40 *I. I. Geru*: Shift of the NMR Line Caused by the Interaction of Nuclei with Triplet Excitons

16:00 *K. Amrutha, K. Velavan*: Determination of the Electron Spin Relaxation Rate of Ni(II) Ions in the Crystalline Environment at 300 K

16:20–16:40 Coffee Break

Hall A

Chair: V. R. Shaginyan

Session: Spin-Based Information Processing

Invited Talk

16:40 *Yu. M. Bunkov*: Quantum Magnonics

Oral Talk

17:10 *V. Soltamov, F. Murzakhanov, S. Or-linskii, G. Mamin, B. Yav-kin, T. Biktagirov, U. Gerstmann, H. J. von Bardeleben*: High Frequency Pulsed EPR/ENDOR studies of NV⁻ Defects in Silicon Carbide

Hall A

Chair: *M. S. Tagirov*

Session: Magnetic Resonance Imaging

Invited Talk

17:30 *G. R. Eaton, L. Woodcock, G. Rinard, S. deGraw, S. S. Eaton*: Rapid Scan EPR at L-Band

Oral Talks

18:00 *D. Abdulganieva, N. Shamsutdinova, V. Mukhamadieva, Ya. Fattakhov, A. Fakhrutdinov, A. Bayazitov, R. Khabipov, V. Shagalov, V. Odivanov, A. Anikin*: Development of Methods for Early Detection of Rheumatoid Arthritis

18:20 *M. Ya. Fattakhova, V. N. Krasnozhon, V. V. Fedorova, R. Sh. Khabipov, E. S. Bekmacheva*: Diagnostics and Rehabilitation of Patients with Voice Diseases

Hall B

Chair: *A. I. Kokorin*

Session: Perspectives of Magnetic Resonance in Science and Spin Technology

Oral Talks

16:40 *D. A. Nevostruev, A. V. Kulikova, D. S. Baranov, M. N. Uvarov*: Free Radicals within Active Layers of Organic Solar Cells and Their Effect on Photoinduced Charge Carriers

17:00 *D. V. Azamat, A. G. Badalyan, N. G Romanov, M. Hrabovsky, L. Jastrabik, A. Dejneka, D. R. Yakovlev, M. Bayer*: Spin Echo Studies in GaN:Fe: Spin-Phonon Relaxation and Ligand Hyperfine Interactions

Invited Talk

17:20 *P. E. Doan*: A Convenient, Improved Calibration of EPR Rapid-Freeze Quench Times: Kinetics of EDTA Transfer from Calcium(II) to Copper(II)

18:30–19:00 Coffee Break

19:00–21:00 Poster Session

FRIDAY, November 5th, 2021

Hall A

Chair: R. N. Shakhmuratov

Plenary Lecture

09:00 I. V. Koptug: NMR and MRI Studies of Catalytic Processes Taking Advantage of Nuclear Spin Hyperpolarization

Session: Chemical and Biological Systems

Invited Talk

09:40 S. Ruthstein: Utilizing EPR Spectroscopy and Computational Modelling To Evaluate the Mechanism Underlying Metal Transcription Activators and De-Repressors

Oral Talks

10:10 A. Brovko, K. Lomanovich, S. Dobryunin, Yu. Polienko, I. Kirilyuk, E. Bagryanskaya: EPR and Quantum Chemical Studies of the Prolidine Nitroxides with Bulky Substituents

10:30 E. N. Golubeva, E. M. Zubanova, P. S. Timashev, A. I. Kokorin, M. Ya. Melnikov Spin Probe Approach for Studying Inhomogeneities in Solutions of Thermoresponsive Polymers

Hall B

Chair: E. L. Vavilova

Session: Modern Methods of Magnetic Resonance

Invited Talks

09:40 H. S. Mchaourab: EPR in the Age of CryoEM: Two Recent Stories

10:10 S. A. Izmailov, S. O. Rabdano, I. S. Podkorytov, O. O. Lebedenko, D. A. Luzik, Z. Hasanbasri, S. Saxena, N. R. Skrynnikov: Structural and Dynamic Origins of ESR Lineshapes in Spin-Labeled GB1 Domain: the Insights from Experiments and Spin Dynamics Simulations Based on MD Trajectories

Oral Talk

10:40 B. B. Kharkov, I. S. Podkorytov, S. A. Bondarev, M. V. Belusov, V. A. Salikov, G. A. Zhouravleva, N. R. Skrynnikov The Role of Rotation in Diffusion NMR Experiments on Supramolecular Assemblies

11:00–11:20 Coffee Break

Hall A*Chair: N. R. Skrynnikov***Session: Chemical and Biological Systems**

Oral Talks

- 11:20 *S. S. Yakushkin, V. L. Kirillov, A. A. Philippov, O. N. Martyanov*: Electron Spin Resonance Study of the Epoxide Thiolytic Fe_3O_4 Magnetically Separable Catalyst
- 11:40 *K. Makarova, K. Zawada, M. Wiweger*: *In vivo* Free Radicals Detection in Zebrafish Embryos with X band Electron Paramagnetic Resonance
- 12:00 *A. Ageeva, I. Magin, A. Stepanov, N. Polyakov, T. Leshina*: Stereoselectivity, Spin Selectivity and Chiral Inversion in Diastereomers of Chiral Drugs. Spin Chemistry and Photochemistry Investigation
- 12:20 *N. B. Asanbaeva, A. A. Sukhanov, A. A. Diveikina, O. Yu. Rogozhnikova, D. V. Trukhin, V. M. Tormyshev, A. S. Chubarov, A. G. Maryasov, A. M. Genaev, E. G. Bagryanskaya*: W-band ^{19}F ENDOR Spectroscopy for Distance Measurement Using Trityl Spin Probe

Hall B*Chair: V. I. Volkov***Session: Modern Methods of Magnetic Resonance**

Invited Talks

- 11:20 *S. O. Travin, A. I. Kokorin*: Abstract on Algorithm for Blind Recognition of EPR Spectra
- 11:50 *S. V. Dvinskikh*: Sign-Sensitive Dipolar NMR Methods in Liquid Crystals

Oral Talks

- 12:20 *E. I. Kondratyeva, E. M. Alakshin, K. R. Safiullin, V. V. Kuzmin, M. S. Tagirov*: Spin Kinetics of ^3He in Contact with DyF_3 Nanoparticles
- 12:40 *I. V. Zhukov, A. S. Kityutin, F. Ferrage, G. Buntkowsky, G. Bodenhausen, A. V. Yurkovskaya, K. L. Ivanov*: Isotropic Mixing at Ultra-Low Field: a Way to Total Chemical Shift Correlation between All Magnetic Nuclei
- 13:00–13:15 Closing of the Conference
- 13:15–14:30 Lunch
- 18:00–20:00 Culture Program

POSTER SESSION

1. D. O. Akatiev, D. A. Turaikhanov, A. V. Shkalikov, I. Z. Latypov, A. A. Kalachev: Investigation of the Passage of Single-Photon States with an OAM Through a Turbulent Atmosphere
2. M. M. Akhmetov, G. G. Gumarov, V. Yu. Petukhov, R. B. Zaripov, G. N. Konygin, D. S. Rybin: The Structure of Radicals in Mechanically Activated Calcium Gluconate
3. D. V. Alimov, S. Pylaeva, M. Yu. Ivanov, M. V. Fedin: MD Study of Structural Anomaly of Dibutyl Phtalate at Different Temperatures
4. D. A. Astvatsaturov, A. Kh. Vorobiev: EPR Spectra of Metal Ions on Graphite Oxide
5. T. I. Chupakhina, R. M. Eremina, I. V. Yatsyk, T. P. Gavrilova, Yu. A. Deeva, A. A. Sukhanov: Investigation of Layered Perovskite-Like Oxides Sr_2TiO_4 Doped with La and Cu by EPR
6. M. M. Bakirov, I. T. Khairutdinov, B. Bales: The Dobryakov-Lebedev Relation Applied to Partially-Resolved EPR Spectra
7. O. D. Bakulina, M. Yu. Ivanov, M. V. Fedin: Nanostructural Anomalies and Heterogeneities in Organic Glasses Revealed by EPR
8. D. Blokhin, D. Sanchugova V. Klochkov: Spatial Structure of PAP (85-120) Peptide Forming SEVI Fibrils by NMR Spectroscopy
9. A. V. Bogaychuk, T. H. Farkhutdinov: $T_2 \times T_{2\text{eff}}$ Low-Field NMR-Relaxometry for Solids
10. M. L. Falin, V. A. Latypov, S. L. Korableva: Determination of Position of Impurity Er^{3+} Ion at Cubic Sites in CsCaF_3 Single Crystals
11. B. F. Farrakhov, A. L. Stepanov, Ya. V. Fattakhov, D. A. Konovalov, V. I. Nuzhdin, V. F. Valeev: Incoherent-Light Pulse Annealing of Nanoporous Germanium Layers Formed by Ion Implantation
12. M. Fedotov, I. Mershiev, G. Kupriyanova, N. Sinyavsky: Distribution of ^{14}N NQR Relaxation Times in Sulfonamide Polymorphs
13. E. Frolova, O. Turanova, L. Gafiyatullin, L. Bazan, A. Turanov, I. Ovchinnikov: Chain Fe (III) Complexes with Tetradentate Ligands
14. Kh. L. Gainutdinov, G. G. Yafarova, V. V. Andrianov, A. S. Zamaro, Y. P. Tokalchik, L. V. Bazan, T. Kh. Bogodvid, V. S. Iyudin, V. A. Kulchitchky: EPR Study of the Content of Nitric Oxide and Copper in the Hippocampus of Rats in the Acute Phase of Ischemic Stroke

15. A. R. Gafarova, G. G. Gumarov, V. Yu. Petukhov, R. B. Zaripov, M. M. Bakirov: DFT-Assisted Study of Conformation of γ -Irradiated Calcium Gluconate
16. R. T. Galeev: Peculiarities of the *ac*-Susceptibility in the Vicinity of Level Anticrossing
17. T. P. Gavrilova, Yu. A. Deeva, I. V. Yatsyk, I. F. Gilmutdinov, M. A. Cherosov, F. G. Vagizov, T. I. Chupakhina, R. M. Eremina: Iron Oxidation State in $\text{La}_{0.7}\text{Sr}_{1.3}\text{Fe}_{0.7}\text{Ti}_{0.3}\text{O}_4$ and $\text{La}_{0.5}\text{Sr}_{1.5}\text{Fe}_{0.5}\text{Ti}_{0.5}\text{O}_4$ Layered Perovskites
18. A. Yu. Germov, D. A. Prokopyev, K. N. Mikhalev, A. S. Konev: NMR Study of Size Effects in Ferromagnetic Nanoparticles
19. Yu. Goryunov, A. Nateprov: Anisotropy of the Paramagnetic Susceptibility in the 3D Dirac Semimetal Cd_3As_2 Caused by Chromium Impurity: the ESR on Cr^{3+} Ions
20. T. A. H. Housheya, A. V. Shestakov, I. V. Yatsyk, V. A. Ulanov: EPR of $\text{Pb}_{1-x}\text{Ni}_x\text{S}:\text{Mn}^{2+}$ Semiconductor Alloy Powder: Results of Double Doping of Galena
21. Yu. E. Kandrashkin, A. van der Est: Enhanced Intersystem Crossing due to Resonant Energy Transfer to a Remote Spin
22. A. V. Kaplin, A. T. Rebrikova, D. Popov: Phase Transformations in the System “Graphite Oxide – Acetonitrile” According to Spin Probe Technique
23. I. T. Khairutdinov, K. M. Salikhov: Three Pulse ELDOR Simulation for the Case of Overlapping EPR Spectra of Spin Labels Taking into Account “Flip-Flop” Terms of Dipole-Dipole Interaction
24. S. S. Khutsishvili, A. I. Perfil'eva, O. A. Nozhkina, N. I. Tikhonov: Stimulation of Plant Stress Resistance of Agricultural *Solanum Tuberosum* L. Using Metal-Containing Bionanocomposites Based on Polysaccharides
25. A. G. Kiiamov, M. D. Kuznetsov, Z. Seidov, V. Tsurkan, H.-A. Krug von Nidda, D. Croitori, L. R. Tagirov, D. A. Tayurskii: Transport Properties of Quasi-One-Dimensional Iron Chalcogenide KFeS_2
26. E. A. Konstantinova, V. B. Zaitsev, E. V. Kytina, A. V. Marikutsa: Paramagnetic Centers and Rhodamine Dye Luminescence of Titania-Based Nanoheterostructures
27. N. A. Kudriavikh, A. S. Kiryutin, A. S. Poryvaev, M. V. Fedin, D. M. Polyukhov: Highly Efficient MOF-Based Catalyst for Ortho-Para Hydrogen Conversion

28. *O. O. Lebedenko, S. A. Izmailov, V. A. Salikov, N. R. Skrynnikov*: Validating MD Models of Disordered Proteins Using NMR Data on Translational Diffusion
29. *R. Likero, A. Sukhanov, I. Yatsyk, V. Tarasov*: Magnetic Interactions and Spin Dynamics of the ^{53}Cr in the Orthosilicate Host Crystals
30. *A. Mambetov, A. Sukhanov, V. K. Voronkova, X. Zhang, J. Zhao*: Electron Spin Polarization Dynamics in a Bay-Substituted Perylene Bisimide upon Photoexcitation
31. *S. Mamadazizov, G. S. Kupriyanova*: Nuclear Quadrupole Resonance Spectra of Nitrogen-Based Heterocycles
32. *D. V. Mamedov, R. M. Eremina, F. G. Vagizov, T. Maiti*: Magnetic Properties of Double Perovskites $\text{Ba}_x\text{Sr}_{2-x}\text{TiFeO}_6$ ($x = 0, 0.1, 0.15, 0.25$)
33. *A. Minsafina, A. Bogaychuk*: Application of Low-Field NMR-Relaxometry for Soybean Lecithin
34. *A. Nikitina, Yu. Bogachev, M. Shishkina*: Modern MRI Methods in the Diagnostics of Brain Diseases
35. *E. Okumus, S. T. Öztürk, M. Yu. Seyidov*: The Localization of Co Dopant in the Structure of TlInS_2 Ternary Semiconductor Obtained from EPR Investigations
36. *I. K. Ostrovskaya, K. Lindt, N. F. Fatkullin, C. Mattea, S. Stapf*: Free Induction Decay (Hahn Echo) in Deuterated PEO Melts
37. *A. S. Parfishina, A. V. Egorov, A. G. Kiiamov, S. L. Korableva, D. S. Nuzhina, A. A. Rodionov, I. V. Romanova, K. R. Safiullin, M. S. Tagirov*: Similarities and Differences of ^{169}Tm in $\text{LiTm}_{(0.02)}\text{Y}_{(0.98)}\text{F}_4$ and LiTmF_4 : NMR Study
38. *M. V. Pasyukov, A. A. Busse, A. V. Petrov, R. V. Yusupov, S. I. Nikitin, A. I. Gumarov, I. V. Yanilkin, A. G. Kiiamov, L. R. Tagirov*: Magnetization Precession in Three-Layer PdFe/W/PdFe Heteroepitaxial Structure with Perpendicular Magnetic Anisotropy
39. *A. T. Rebrikova, N. A. Chumakova, V. Kh. Vorobiev, M. V. Korobov*: Application of EPR Method to Study of Binary Systems Graphite Oxide – Polar Liquids
40. *B. A. Rodin, V. P. Kozinenko, J. Eills, K. Ivanov, A. Yurkovskaya*: General Adiabatic Pulses for Transferring Singlet Order to Heteronuclear Magnetization: Application to Fumarate Hyperpolarized with Parahydrogen

41. *V. O. Sakhin, E. F. Kukovitskii, Yu. I. Talanov, G. B. Teitel'baum*: The Bulk Transport Properties of the $\text{Bi}_{1.08}\text{Sn}_{0.02}\text{Sb}_{0.9}\text{Te}_2\text{S}$ Topological Insulators as Revealed from ESR and Resistivity Data
42. *V. A. Salikov, N. R. Skrynnikov, I. S. Podkorytov*: Improved Processing Scheme for Diffusion NMR Data Implemented in Web Server DDfit
43. *D. A. Sanchugova, V. V. Klochkov, D. S. Blokhin*: The Structure of Fibril-Forming SEM1(68-85) Peptide Increasing the HIV Infection
44. *G. S. Shakurov, H. R. Asatryan, A. G. Petrosyan, K. L. Hovannesyanyan, M. V. Derdzyan*: Tunable EPR Spectroscopy of Non-Kramers Ions in a YAlO_3 Crystal
45. *T. Shaposhnikova, R. Mamin*: The Region of Existence of Nanoscale States with Magnetic and Ferroelectric Ordering
46. *L. V. Sharipova, E. A. Ermakova, A. N. Turanov, B. I. Khayrutdinov, Y. F. Zuev*: Intermolecular Mobility of Pillar[5]arene – α -Lipoic Acid Complex by NMR Spectroscopy Data
47. *A. V. Shestakov, I. I. Fazlizhanov, I. V. Yatsyk, M. A. Cherosov, I. I. Ibragimova, R. M. Eremina*: Direct Measurements of Magnetic Polarons in $\text{Hg}_{1-x}\text{Mn}_x\text{Te}$ ($x = 0.135$) by Magnetic Resonance Method
48. *F. Siraev, M. Avdeev, Yu. Proshin*: Variation Perturbation Scheme for Calculating Temperature Dependence of the Unconventional Spin-Singlet Superconductors
49. *M. Smirnov, I. Mershiev, G. Kupriyanova*: ^{13}C NMR High Resolution Spectrometry and Relaxometry for Soybean Oil Research
50. *A. V. Spiridonova, M. A. Cherosov, B. F. Gabbasov, A. G. Kiiamov, R. V. Yusupov, O. V. Nedopekin, I. V. Romanova*: Investigation of Pyrochlore Structure Compounds: $\text{Tb}_2\text{Ti}_2\text{O}_7$ and $(\text{Y}_{0.95}\text{Er}_{0.05})_2\text{Sn}_2\text{O}_7$ Synthesis, Magnetic Measurements and *ab initio* Calculations
51. *A. A. Sukhanov, V. K. Voronkova, Yuxin Yan, Zafar Mahmood, J. Zhao*: Time Resolved EPR Study of Some Photoexcited Twisted Molecules
52. *A. Sukhanov, M. Mamedov, A. Semenov, K. Salikhov*: On the Manifestation of the Le Chatelier-Braun Principle in Trehalose Matrices Photosystem 1
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56. *Yu. A. Uspenskaya, R. A. Babunts, L. S. Vlasenko*: Application of High Frequency Magnetic Resonance Spectrometer for Study of Recombination Centers by Microwave Spin Dependent Photoconductivity
57. *V. E. Vorobeva, D. V. Starichenko, M. S. Gruzdev, U. V. Chervonova, A. M. Kolker*: Magnetic Study of the Dendrimeric Iron(III) Carbazole Complexes
58. *V. E. Vorobeva, R. B. Zaripov, M. S. Gruzdev, U. V. Chervonova*: EPR Study of the Mononuclear Iron(III) Complexes with Biphenyl-Bisubstituted Schiff Base Ligand
59. *T. S. Yankova, N. A. Chumakova*: Site-Specific Spin Probing of Graphite Oxide Membrane Using 4-AminoTEMPO
60. *A. Yazikova, A. Poryvaev, E. Gjuzi, D. Polyukhov, F. Hoffmann, M. Froba, M. Fedin*: Chemisorption Study of Nitrogen Monoxide into Radical-Containing Xerogel by EPR Spectroscopy
61. *S. V. Yurtaeva, I. V. Yatsyk, A. I. Valieva, E. A. Gumerova, N. I. Rumyantsev*: FMR Signals in Cultivated Cells *Fagopyrum Tataricum*
62. *R. B. Zaripov, Yu. E. Kandrashkin, K. M. Salikhov, B. Büchner, F. Liu, M. Rosenkranz, A. A. Popov, V. Kataev*: EPR Study of Endohedral Fullerene $\text{Sc}_2@C_{80}(\text{CH}_2\text{Ph})$
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64. *A. L. Zinnatullin, B. F. Gabbasov, R. V. Yusupov, R. I. Khaibullin, F. G. Vagizov*: Anisotropic Ferromagnetism in High Dose Iron Implanted Magnesium Oxide
65. *E. M. Zubanova, T. A. Ivanova, E. N. Golubeva*: Coil to Globule Transition in PNIPAM and Its Copolymer Solutions: EPR Spin Probe Technique Study
66. *Yu. Slesareva, Yu. Kandrashkin, R. Zaripov, T. Ruffer, E. Vavilova*: Multi-Pulse Protocols in Solid-State ^1H NMR in Cu- and Ni-Oxamidato Complexes

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