MODERN DEVELOPMENT OF MAGNETIC RESONANCE

program

2013

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MODERN DEVELOPMENT OF MAGNETIC RESONANCE

PROGRAM OF THE
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The conference is organized under the auspices of
the AMPERE Society

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Kazan E. K. Zavoisky Physical-Technical Institute,
Kazan Scientific Center of the Russian Academy of Sciences
The Academy of Sciences of the Republic of Tatarstan

SUPPORTED BY

The Russian Foundation of for Basic Research
Bruker BioSpin GmbH, Germany

CONFERENCE LOCATION

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

TIME SCHEDULE

TUESDAY, September 24th, 2013

09:00	Registration
11:00–13:00	Excursion
13:00–14:00	Lunch
14:30–15:00	Opening of the Conference
15:00–17:40	Plenary Lectures
18:00	Welcome Party

WEDNESDAY, September 25th, 2013

09:00–11:00	Plenary Lectures
11:00–11:30	Coffee Break
11:30–13:00	Session (Hall A, B)
13:00–14:30	Lunch
14:30–18:00	Session (Hall A, B)
16:30–17:00	Coffee Break
17:00–18:00	Session (Hall A, B)
18:30	Reception at the Academy of Sciences of the Republic of Tatarstan

THURSDAY, September 26th, 2013

09:00–11:00	Plenary Lectures
11:00–11:30	Coffee Break
11:30–13:00	Session (Hall A, B)
13:00–14:30	Lunch
14:30–17:30	Excursion
18:00–20:00	Poster session (Coffee break sponsored by Bruker BioSpin)

FRIDAY, September 27th, 2013

09:00–11:30	Session (Hall A, B)
11:30–12:00	Closing of the Conference
12:30–13:30	Lunch
14:00–17:00	Zavoisky Award Ceremony and Zavoisky Award 2013 Lecture
19:00	Conference Dinner

SCIENTIFIC PROGRAM

TUESDAY, September 24th, 2013

Hall A
Plenary Session
Chair: K. M. Salikhov

15:00 *W. Lubitz*: The Water Splitting Machine of Photosynthesis Studied by EPR Techniques
15:40 *H. Ohta, S. Okubo, E. Ohmichi, T. Sakurai, T. Shimokawa*: Multi-Extreme THz ESR: Its Developments and Applications
16:20 *G. Jeschke, B. Joseph, E. Bordignon, M. Yulikov, Ye. Polyhach, T. von Hagens, V. Korkhov, C. Dietz, H. Paulsen*: EPR Methods for Characterizing Disorder and Structural Changes of Membrane Proteins
17:00 *Yu. D. Tsvetkov, A. D. Milov, N. A. Kuznetsov, O. S. Fedorova*: PELDOR of Spin Labeled DNA

WEDNESDAY, September 25th, 2013

Hall A
Plenary Session
Chair: M. K. Bowman

9:00 *K. Möbius*: Probing Conformational Changes in Photosynthetic Protein Complexes − News and Views from High-Field Dipolar EPR Spectroscopy
9:40 *V. Kataev*: Uncovering a Complex Interplay of Spins, Orbitals and Charges in $LaSrMnO_4$ by Sub-THz Spectroscopy in Ultra-Strong Magnetic Fields
10:20 *S. V. Demishev, A. V. Semeno, V. V. Glushkov, I. I. Lobanova, A. N. Samarin, N. E. Sluchanko*: High-Frequency EPR Evidence of Heisenberg Localized Magnetic Moments in MnSi.
11:00 Coffee Break

Hall A
Session: Chemical and Biological Systems
Chair: W. E. Trommer

Invited Talks

11:20 *E. G. Bagryanskaya, M. V. Fedin, S. L. Veber, I. Yu. Drozdyuk, E. V. Tretyakov, V. I. Ovcharenko, A. M. Sheveleva, D. I. Kolokolov, A. G. Stepanov*: EPR of Switchable Magneto-Active Materials with Nitroxides

11:50 *S. A. Dzuba*: Structural Studies of Biological Membranes Using Eseem Spectroscopy of Spin Labels and Deuterium Substitution

Oral Talks

12:20 *A. I. Kokorin, E. N. Golubeva, B. Y. Mladenova-Kattnig, G. Grampp*: Short Nitroxide Biradicals: Comparison of EPR Data with Quantum-Chemical Calculations

12:40 *L. V. Kulik, M. N. Uvarov, A. A. Popov, E. A. Lukina*: Spin Relaxation and Magnetic Interactions in Light-Induced Spin-Correlated Radical Pairs in P3HT:PC60BM Composite

Hall B
Session: Strongly Correlated Electron Systems
Chair: M. S. Tagirov

Oral Talks

11:20 *G. Khaliullin*: Magnetic Order and Excitations in Iridium Oxides

11:40 *E. L. Vavilova, V. Kataev, M. Schäpers, Y. Krupskaya, A. U. B. Wolter-Giraud, H.-J. Grafe, A. Möller, B. Büchner*: NMR and High-Field ESR Study of the Low-Dimensional Quantum Magnet $BaAg_2Cu[VO_4]_2$

12:00 *I. R. Mukhamedshin, H. Alloul*: NMR Evidence for a Strong in Plane Electronic Anisotropy of Cobalt Ions in Sodium Cobaltates $Na_{2/3}CoO_2$

12:20 *V. O. Sakhin, Yu. I. Talanov, L. F. Salakhutdinov, T. Adachi, T. Noji, Y. Koike*: EPR Study of Magnetic Anomalies in the $La_{2-x}SR_xCuO_4$ Single Crystals above the Critical Temperature

Hall A
Session: Dedication to the Memory of the Late Prof. Yurii V. Yablokov
Chair: V. F. Tarasov

Invited Talks

14:30 *B. I. Kochelaev*: In Memory of Yurii V. Yablokov

15:00 *G. I. Likhtenshtein*: ESR in Combination with Luminescence and Mössbauer Methods as a Tool for Investigation of Structure, Molecular Dynamics and Redox Status of Biosystems

15:30 *I. Geru*: EPR Evidence of Molecular Photoeffect for Multiwall Carbon Nanotubes

16:00 *M. V. Eremin*: Dedicated to Prof. Yu. V. Yablokov. Peculiarities of Interaction between Jahn-Teller Centers

Hall B
Session: Other Applications of Magnetic Resonance
Chair: H.-H. Klauss

Oral Talks

14:30 *G. V. Mozzhukhin, B. Z. Rameev, G. S. Kupriyanova, P. Aksu, B. Aktaş*: NQR Cross Relaxation of N-14 Nuclei in Low Magnetic Field

14:50 *N. Ya. Sinyavsky, G. S. Kupriyanova, F. N. Dolinenkov*: The T_1 and T_2 Relaxation Times Distribution for the ^{35}Cl and ^{14}N NQR in Microcomposites and in Porous Materials

15:10 *E. G. Kovaleva, L. S. Molochnikov*: Characterization of Porous and Nanostructured Solid-Phase Systems by EPR of pH-Sensitive Probes and Labels

15:30 *E. L. Maltseva, V. V. Belov, T. E. Chasovskaya, N. P. Palmina*: Application of Spin-Probe Method To Study the Effect of Antioxidants on Biological Membranes *in vitro*

15:50 *A. D. Gorlov*: Hyperfine Structure of EPR Spectra of Eu^{2+} in $SrMoO_4$. The Determination of Sign b_2^0 and P_2^0 at all Temperatures

16:10 *A. Aliabadi, A. Petr, M. A. Abdulmalic, T. Rüffer, V. Kataev, B. Büchner*: Electron Spin Density Distribution in Cu(II)-(bis) Oxamato Complexes: an ESR Study

16:30 Coffee break

Hall A
Session: Dedication to the Memory of the Late Prof. Yurii V. Yablokov
Chair: I. V. Ovchinnikov

Invited Talks

17:00 *M. A. Augustyniak-Jabłokow*: From Jahn-Teller Effect via Mixed Valence Clusters to Carbon Materials – the Poznan's Period

17:30 *V. K. Voronkova, A. A. Sukhanov, A. Baniodeh, A. K. Powell*: EPR of Clusters Containing Dysprosium Ions

Hall B
Session: Other Applications of Magnetic Resonance
Chair: V. A. Vazhenin

Oral Talks

17:00 *T. V. Kobzeva, G. G. Dultseva*: EPR-Based Evaluation of the Oxidative Status Using Cyclic Dinitrones as Spin Probe Precursors

17:20 *A. Y. Komarovskikh, V. A. Nadolinny, Y. N. Pal'yanov, I. N. Kupriyanov*: EPR Study of the Impurity Defects in Diamonds Grown in Carbonate Medium

17:40 *A. N. Tcherepanov, A. N. Tararkov*: New Compact Coherent Heterodyne EPR-Spectrometer

THURSDAY, September 26th, 2013

Hall A
Plenary Session
Chair: H. Ohta

9:00 *M. K. Bowman, A. G. Maryasov, V. M. Tormyshev*: Low-Temperature Electron Spin Dynamics and DNP

9:40 *A. Yu. Semenov, A. Savitsky, K. Möbius, J. Golbeck, V. Nadtochenko*: Asymmetry of Electron Transfer in Photosystem I as Studied by Pump-Probe Femtosecond Absorption Spectrometry and W-band Transient EPR Spectroscopy

10:20 *V. V. Khramtsov*: Multifunctional *in vivo* EPR Spectroscopy and Imaging Using Advanced Nitroxide and Trityl Paramagnetic Probes

11:00 Coffee break

Hall A
Session: Chemical and Biological Systems. Electron Spin Based Methods for Electronic and Spatial Structure Determination
Chair: E. G. Bagryanskaya

Invited Talk

11:30 *H. Yang, Y. Li, M. Jiang, H. Fu*: EPR Study on Mechanism of Catalyzed Reactions from Arylboronic Acids to Phenols

Oral Talks

12:00 *Yu. E. Kandrashkin, V. S. Iyudin, V. K. Voronkova, E. A. Mikhalitsyna, V. S. Tyurin*: Continuous-Wave and Time-Resolved Electron Paramagnetic Resonance Study of Dimerized Aza-Crown Copper Porphyrins

12:20 *W. E. Trommer*: The Molten Globule State of Maltose Binding Protein: DEER Measurements at pH 3

12:40 *R. B. Zaripov, A. E. Mambetov, V. K. Voronkova, K. M. Salikhov, V. P. Gubskaya, I. A. Nuretdinov*: Investigation of C60 Derivatives with Two and Four Nitroxide Groups by Time-Resolved and Pulse EPR Spectroscopy

Hall B
Session: Spin-Based Information Processing
Chair: G. Jeschke

Invited Talk

11:30 *T. Takui*: Recent Trends in Open Shell Chemistry: Can Chemistry Contribute to Electron Spin Science/Spin Technology of QC/QIP?

Oral Talks

12:00 *G. Kothe, T. Yago, M. Lukaschek, J.-U. Weidner, G. Link, T.-S. Lin*. Light-Induced Generation and Coherent Manipulation of Entangled Quantum States in Molecular Crystals

12:20 *K. I. Gerasimov, S. A. Moiseev, V. I. Morosov, R. B. Zaripov*: Electron Spin Echo Memory Realized in a Native Atomic Frequency Combs Structure at Room Temperature

12:40 *V. A. Soltamov, A. A. Soltamova, P. G. Baranov, F. Fuchs, G. V. Astakhov, V. Dyakonov*: Point Defects in Silicon Carbide as a Perspective Basis for Quantum Electronics Operating at Room Temperature

FRIDAY, September 27th, 2013

Hall A
Session: Theory of Magnetic Resonance. Modern Methods of Magnetic Resonance
Chair: Y. Li, S. V. Demishev

Invited Talks

9:00 *K. M. Salikhov*: PELDOR Theory Revisited

Oral Talks

9:30 *D. A. Kuznetsov*: Bruker BioSpin: Latest Developments in EPR Instrumentation

9:50 *A. G. Maryasov, M. K. Bowman, Yu. D. Tsvetkov*: Vector Models in Echo Detected EPR, ESEEM, and PELDOR of Anisotropic Paramagnetic Centers

10:10 *M. L. Falin, V. A. Latypov, M. M. Zaripov*: Magnetic Resonance of Nd^{3+} Nanostructures in Perovskite Type Crystals

10:30 *V. F. Tarasov, N. K. Solovarov, A. A. Sukhanov, R. B. Zaripov, E. V. Zharikov*: Combined Magneto-Electric Spin Resonance of Impurity Ho Ions in Synthetic Forsterite

10:50 *A. S. Kiryutin, K. L. Ivanov, A. V. Yurkovskaya, H.-M. Vieth, N. N. Lukzen*: Manipulating Spin Hyper-Polarization by means of Adiabatic Switching of a Spin-Locking RF-Field

11:10 *I. Tkach, M. Bennati*: Distance and Orientation Measurements with DEER/PELDOR at 95 and 263 GHz

Hall B
Session: Low-Dimensional Systems and Nano-Systems
Chair: I. Garifullin

Invited Talk

9:00 *H.-H. Klauss*: High Field NMR Studies of Magnetic Field Driven Quantum Criticality in $S = 1/2$ Antiferromagnetic Spin Chains

Oral Talks

9:30 *R. M. Rakhmatullin, L. K. Aminov, I. N. Kurkin, R. Böttcher, A. Pöppl, S. Sen*: Size-Dependent Lattice Distortions in Nanocrystalline Ceria Doped with Gd^{3+} and Y^{3+}: An EPR Study

9:50 *A. M. Ziatdinov, N. S. Saenko*: Electronic and Magnetic Properties of Three Dimensional Disordered Network of Nanographites: ESR and Magnetic Susceptibility Data

10:10 *V. A. Morozov*: Spin-Crossover Like Transitions in Quasi 1D Compounds of Cu(II) Based Exchange Clusters

10:30 *E. A. Zvereva, M. I. Stratan, T. M. Vasilchikova, A. N. Vasiliev, V. B. Nalbandyan, I. L. Shukaev, M. A. Evstigneeva, B. Büchner*: Spin Dynamics in a New Quasi 1D Sodium Cobalt Tellurate

10:50 *T. B. Biktagirov, M. R. Gafurov, G. V. Mamin, S. B. Orlinskii, A. A. Rodionov, B. V. Yavkin, E. S. Klimashina, V. I. Putlayev*: A Multi-Frequency EPR and ENDOR Study of NO_3^{2-} Defect in Nanosized Hydroxyapatite

Hall A

11:30 Closing of the Conference

14:00 Zavoisky Award Ceremony and Zavoisky Award 2013 Lecture Yu. D. Tsvetkov: Pulsed EPR Dipolar Spectroscopy and Its Applications

POSTER SESSIONS

1. *L. I. Savostina, W. Lubitz, M. van Gastel*: Quantum Chemistry Calculations of EPR Parameters of a Reduced $[4Fe4S]^{+}$ Cluster: Hyperfine Constants of Hydrogen Atoms
2. *V. A. Vazhenin, M. Yu. Artyomov, A. P. Potapov, A. V. Fokin*: The Transformation of the Copper Centres in $Pb_5Ge_3O_{11}$ Crystals at Annealing in Halogen Atmosphere
3. *N. E. Domracheva, A. V. Pyataev, V. E. Vorobeva, E. M. Zueva*: Magnetic Features of Spin-Crossover Dendrimeric Iron(III) Complex
4. *A. N. Turanov, A. K. Khitrin*. Suspended Long-Lived NMR Echo in Solids
5. *A. S. Berezin, V. A. Nadolinny, L. G. Lavrenova, E. V. Lider*: EPR Study of Non-Resonance Microwave Absorption of $Cu(aetkpz)_2Br_2$
6. *U. Sayin, L. Palali, Z. Sayin, R. Tapramaz, E. Ergun, G. Bakkal, A. Ozmen*: Investigation of Healthy and Infected (Brucellosis, Mastitis) Blood and Milk Samples: An ESR Spin Labeling Study
7. *L. Ates, H. U. Taşdemir, U. Sayin, E. Türkkan, A. Ozmen*: Magnetic Properties of Gamma Irradiated 2,3-Butanedione Monoxime: An Experimental and Theoretical ESR Study
8. *A. A. Bayazitov, Ya. V. Fattakhov*: Research of Two-Circuit System of Surface Type of the Receiving Sensor of MRI-Tomography
9. *R. M. Eremina, K. R. Sharipov, L. V. Mingalieva*: Superparamagnetic Behavior in LaSrMnZnO Systems
10. *S. Gündoğdu, H. U. Taşdemir, E. Türkkan, Ö. Dereli*: Density Functional Computations of the EPR, NMR Spectra and Spatial Molecular Structure of Ortho-Nitrophenol.
11. *A. V. Bychkova, O. N. Sorokina, A. V. Shapiro, M. Rosenfeld, A. L. Kovarski, V. Berendyaev*: Electron Magnetic Resonance Technique in the Study of Macromolecule Adsorption on Magnetic Nanoparticle Surface in Dispersion
12. *M. A. Augustyniak-Jabłokow, M. Maćkowiak, R. Strzelczyk, K. Tadyszak*: The Edge Magnetism of Monolayer Graphene and Nanographite
13. *N. A. Krylatykh, Ya. V. Fattakhov, A. R. Fakhrutdinov, V. N. Anashkin, V. A. Shagalov, I. A. Nurmamyatov, R. Sh. Khabipov*: Detection of Explosive Precursors Using Low-Field Magnetic Resonance Imaging and Spectroscopy

14. *V. A. Ulanov, A. M. Sinitsyn, R. R. Zainullin, E. R. Zhiteytsev*: EPR of the Narrow-Gap Semiconductor PbS Doped Highly by Manganese Ions
15. *E. A. Lukina, A. G. Popov, M. N. Uvarov, L. V. Kulik*: Light-Induced EPR Study of Charge Recombination in P3HT/PC70BM Composite.
16. *M. I. Ibragimova, A. I. Chushnikov, G. V. Cherepnev, V. Yu. Petukhov, E. P. Zheglov*: Abnormal Lines in EPR Spectra of Sportsmen's Serum Blood
17. *E. R. Zhiteytsev, R. R. Zainullin, A. M. Sinitsyn, V. A. Ulanov*: EPR of Chromium Precipitates in BaF_2 Crystals
18. *M. Ivanov, S. L. Veber, M. V. Fedin*: Spin Dynamics of ZnTPP in Room-Temperature Ionic Liquids [bmim]PF_6 and [bmim]BF_4 Studied by Time-Resolved EPR
19. *Y. V. Goryunov, A. N. Nateprov*: Quantum Phase Transition in Eu-Zn Pnictides on the ESR Date
20. *L. G. Gafiyatullin, L. I. Savostina, O. I. Gnezdilov, O. A. Turanova, I. V. Ovchinnikov, A. N. Turanov*: The Dependence of 4-Styryl-pyridine Photoisomerization on Wavelength Radiation and on the Solvent. UV, NMR, and DFT Studies
21. *G. G. Gumarov, A. V. Alekseev, M. M. Bakirov, V. Yu. Petukhov, V. F. Valeev*: FMR Investigation of Iron Silicide Films Ion Beam Synthesized in Magnetic Field
22. *R. T. Galeev, A. A. Sukhanov, R. M. Eremina, V. K. Voronkova, A. Baniodeh, A. K. Powell*: Unusual Anisotropy of the {g}-Tensor in Dimer Dysprosium (III) Domplex. EPR Study
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25. *B. M. Khasanov*: ESR Study of Critical Fluctuations at N-Sa Phase Transition

26. *T. P. Gavrilova, I. V. Yatsyk, R. M. Eremina, D. V. Mamedov, I. I. Fazlizhanov, A. A. Rodionov, V. I. Chichkov, N. V. Andreev, Ya. M. Mukovskii*: Electron Spin Resonance in Thin Film $GdMnO_3$/$SrTiO_3$
27. *A. A. Popov, L. V. Kulik*: Electron Spin Echo of Light-Induced Spin Correlated Radical Pairs in PCBM/P3HT Composite
28. *T. A. Ivanova, L. V. Mingalieva, I. V. Ovchinnikov, I. F. Gilmutdinov, O. A. Turanova, G. I. Ivanova*: The Synthesis, EPR and Magnetic Properties of Fe(III) Complexes with Tetradentate N_2O_2 Donating Schiff-Base Ligand Bridged by Pirazine
29. *S. V. Yurtaeva, I. V. Ovchinnikov, M. P. Kutyreva, A. R. Gataulina, N. A. Ulakhovich, V. I. Muravyev*: EPR Investigation of Cu (II) Complexes with Hyperbranched Polyesterpolyols Modified by Amines
30. *S. V. Yurtaeva, V. N. Efimov*: Electron Magnetic Resonance in Biological Systems
31. *A. G. Isavnin, I. I. Mirgazov*: Asymmetric Stochastic Resonance in a System of Ferromagnetic Nanoparticles
32. *M. L. Falin, K. I. Gerasimov, V. A. Latypov*: Magnetic Resonance and Optical Spectroscopy of Yb^{3+} in the $CsCaF_3$ and CaF_2 Single Crystals
33. *M. M. Bakirov, K. M. Salikhov, R. T. Galeev*: Separation of the Contributions of Dipole-Dipole and Exchange Interactions to the Shape of EPR Spectra of Free Radicals in Diluted Solutions
34. *I. T. Khairuzhdinov, K. M. Salikhov*: Modeling of PELDOR Signal for Three Spin Systems
35. *G. S. Shakurov, V. A. Shustov*: Tunable High-Frequency EPR Spectroscopy of the Clay and Plasticine
36. *V. V. Glushkov, S. V. Grigoriev, S. V. Demishev, T. V. Ischenko, I. I. Lobanova, A. N. Samarin, A. V. Semeno, N. E. Sluchanko*: Chiral Spin-Liquid State in $Mn_{1-x}Fe_xSi$ Solid Solutions
37. *H. Yang, Y. Li, M. Jiang, H. Fu.*: EPR Study on Mechanism of *ipso*-Nitration of Arylboronic Acids
38. *R. Gazizulin*: Magnon BEC in $CsMnF_3$
39. *E. Alakshin*: NMR, NPQR, X-Ray, HRTEM of Van Vleck Paramagnet PrF_3 Nanoparticles

40. *V. N. Lisin, A. M. Shegeda*: Measurement of the *g*-factors of Ground and Excited States in the Zero dc Magnetic Field by the Photon Echo Method
41. *O. A. Krumkacheva, I. A. Kirilyuk, Y. F. Polienko, I. A. Grigor'ev, R. K. Strizhakov, E. S. Babailova, A. V. Ivanov, M. A. Vorobjeva, A.G. Venyaminova, A. A. Malygin, G. G. Karpova, M. V. Fedin, E. G. Bagryanskaya*: EPR Study of New Spin Labels Based on 2,5-bis(spirocyclohexane)-Substituted Nitroxides of Pyrroline and Pyrrolidine Series
42. *O. V. Nedopekin, L. V. Konopleva, K. A. Il'yasov*: Validation of the MRI Based Fiber Tracking Results on a Numerical Phantom
43. *M. V. Petrova, A. B. Doktorov, N. N. Lukzen:* CPMG Echo Amplitudes with Arbitrary Refocusing Angle: Explicit Expressions, Asymptotic Behavior, Approximations
44. *N. P. Isaev, M. V. Fedin, V. Denysenkov, T. Prisner, S. A. Dzuba*: S.A.: Comparison of X-, Q- and G-band Stimulated Electron Spin Echo Data on Molecular Motions of Spin Labels
45. *D. Savchenko, E. Kalabukhova, A. Pöppl, B. Shanina, E. Mokhov*: Pulsed ENDOR Study of the Nitrogen Donors in 6H SiC Crystals Grown under Carbon-Rich Conditions

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