

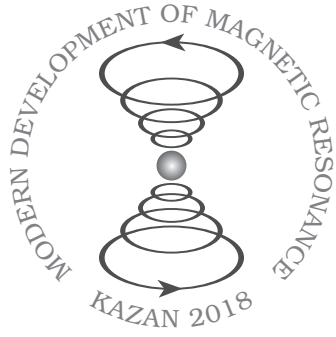
MODERN DEVELOPMENT OF MAGNETIC RESONANCE

program

2018

KAZAN * RUSSIA





MODERN DEVELOPMENT OF MAGNETIC RESONANCE

PROGRAM OF THE
INTERNATIONAL CONFERENCE

KAZAN, SEPTEMBER 24–28, 2018

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TIME SCHEDULE

MONDAY, September 24th, 2018

09:00	Registration (Academy of Sciences of the Republic of Tatarstan)
10:30–11:00	Welcome Coffee
11:00–13:00	Excursion
11:00–14:00	Exhibition
13:00–14:00	Lunch
14:00–14:15	Opening of the Conference
14:15–15:30	Zavoisky Award Ceremony
15:30–16:00	Zavoisky Award Lecture
16:00–16:20	Coffee Break
16:20–17:40	Plenary Lectures
18:00	Welcome Party

TUESDAY, September 25th, 2018

09:00–10:20	Plenary Lectures
10:20–10:40	Coffee Break
10:40–11:40	Session: Spin-Based Information Processing
11:40–13:00	Session: Theory of Magnetic Resonance
13:00–14:30	Lunch
14:30–16:00	Session: Chemical and Biological Systems
16:00–16:20	Coffee Break
16:20–17:50	Session: Chemical and Biological Systems
17:50–18:10	Session: Molecular Magnets and Liquid Crystals
19:00	Culture Program

WEDNESDAY, September 26th, 2018

09:00–10:20	Plenary Lectures
10:20–10:40	Coffee Break
10:40–13:00	Session: Strong Correlated Electron System
13:00–14:30	Lunch

- 14:30–15:50 Session: Modern Methods of Magnetic Resonance
15:50–16:10 Coffee Break
16:10–18:30 Session: Low-Dimensional Systems and
Nano-Systems
18:30–20:30 Poster Session

THURSDAY, September 27th, 2018

- 09:00–10:20 Plenary Lectures
10:20–10:40 Coffee Break
10:40–12:00 Session: Perspective of Magnetic Resonance
in Science and Spin-Technology
12:00–13:50 Session: Electron Spin Based Methods
for Electronic and Spatial Structure Determination
in Physics, Chemistry and Biology
14:00–14:45 Lunch
14:45 Zavoisky Readings (Kazan Federal University)
19:00 Conference Dinner

FRIDAY, September 28th, 2018

- 09:00–10:20 Plenary Lecture
10:20–10:35 Coffee Break
10:35–13:05 Session: Other Applications of Magnetic Resonance
13:05–13:20 Coffee Break
13:20–14:00 Session: Other Applications of Magnetic Resonance
14:00–14:40 Session: Medical Physics
15:10 Closing of the Conference

CONFERENCE LOCATION

The Academy of Sciences of the Republic of Tatarstan, Baumana str., 20;
Hotel Nogai, Profsojuznaja str., 16B

SCIENTIFIC PROGRAM

MONDAY, September 24th, 2018

- 14:00 Opening of the Conference
14:15 Zavoisky Award Ceremony
15:30 Zavoisky Award 2018 Lecture
R. D. Britt: Solar Fuels: Nature's Approach

Plenary Session

Chair: *A. A. Kalachev*

- 16:20 S. V. Demishev, M. I. Gilmanov, A. N. Samarin, A. V. Semeno, N. E. Sluchanko, N. A. Samarin, A. V. Bogach, N. Yu. Shitsevalova, V. B. Filipov, V. V. Glushkov: ESR in Strongly Correlated Topological Insulator SmB_6 : Built-in Mechanism of Time Reversal Symmetry Breaking and Anomalous Spin Relaxation
17:00 S. A. Dikanov: Resolving Protein – Paramagnetic Intermediate Interactions by Two-Dimensional Pulsed EPR Spectroscopy

TUESDAY, September 25th, 2018

Hall Tukai

Plenary Session

Chair: *W. Lubitz*

- 09:00 K. Möbius: High-Field EPR Studies of Water-Protein Hydrogen Bond Interactions and Their Role For Biological Function
09:40 A. A. Kalachev: Studying Isotopically Purified Rare-Earth Doped Crystals for Raman Quantum Memories

Session: Spin-Based Information Processing*Chair: S. B. Orlinskii*

Oral Talks

- 10:40 *R. A. Akhmedzhanov, L. A. Gushchin, N. A. Nizov, V. A. Nizov, D. A. Sobgayda, I. V. Zelensky*: Cross-Relaxation Magnetometry in Diamond NV-Centers with Polycrystalline Samples
- 11:00 *R. M. Eremina, I. V. Yatsyk, V. F. Tarasov, K. B. Konov, Y. D. Zavartsev, Sergey A. Kutovoi, R. F. Likerov*: Investigation of Neodymium Doped YVO₄ by EPR Method
- 11:20 *A. Komarovskikh, V. Nadolinny, Y. Palyanov, I. Kupriyanov*: EPR Study of the Neutral Germanium-Vacancy Center in Diamond

Session: Theory of Magnetic Resonance*Chair: K. M. Salikhov*

Invited Talks

- 11:40 *G. Bochkin, E. Fel'dman, I. Lazarev, S. Vasil'ev, V. Volkov*: Experimental and Theoretical Investigations of Multiple-Quantum NMR Coherences in One-Dimensional Systems
- 12:10 *K. A. Earle, T. Broderick*: Low Symmetry Orienting Potentials and Efficient Computation of ESR Line Shapes

Oral Talk

- 12:40 *B. V. Fine*: Hybrid Quantum-Classical Method for Simulating High-Temperature Dynamics of Nuclear Spins in Solids

Session: Chemical and Biological Systems*Chair: A. V. Yurkovskaya*

Invited Talks

- 14:30 *G. Likhtenshtein*: Nitroxides in Cotton and Cellulose. Physicochemistry and Technology. 42 Years of History
- 15:00 *V. Kurashov, G. E. Milanovsky, M. Gorka, D. A. Cherepanov, J. H. Golbeck, A. Yu. Semenov*: Trehalose Effect on the Forward and Backward Electron Transfer in Photosystem I
- 15:30 *B. A. Rodin, K. F. Sheberstov, A. S. Kiryutin, A. V. Yurkovskaya, K. L. Ivanov*: New Methods in Singlet-State NMR

Session: Chemical and Biological Systems

Invited Talk

16:20 M. Bowman: Trityl Biradicals in Solution: Conformations and Dynamics

Oral Talks

16:50 E. Kovaleva, L. Molochnikov, D. Tamasova, D. Antonov: EPR Probe-Based Approach for Acid Base Characterization of Mesoporous Silicas with Different Functionalities

17:10 R. I. Samoilova: EPR Studies of the Reactive Oxygen Species on Powder TiO₂

17:30 N. Isaev, J. Heuveling, N. Ivanisenko, E. Schneider, H.-J. Steinhoff: ESEEM Observation and Localization of Bound Deuterated Substrate Histidine-d5 in Spin Labeled ABC Transporter HisQMP₂

Session: Molecular Magnets and Liquid Crystals

Invited Talk

17:50 S. V. Dvinskikh: Experimental Strategies for ¹³C-¹⁵N Dipolar Spectroscopy in Liquid Crystals with Natural Isotropic Abundance

WEDNESDAY, September 26th, 2018

Hall Tukai**Plenary Lectures**

Chair: *S. A. Dikanov*

09:00 S. Okubo, Y. Kitahara, S. Ikeda, S. Hara, T. Sakurai, H. Ohta, D. Yoshizawa, M. Hagiwara, F. Kimura, T. Kimura, Y. Sakurai, K. Nawa, Y. Okamoto, Z. Hiroi: Development and Application of THz ESR in Kobe University

09:40 G. Khaliullin: Pseudo Jahn-Teller Effect in Spin-Orbit Entangled Mott Insulators

Session: Strong Correlated Electron System*Chair: S. V. Demishev*

Invited Talk

10:40 V. V. Kabanov: Magnetic Quantum Oscillations in Doped Antiferromagnetic Insulators

Oral Talks

11:10 J. Zeisner, O. Pilone, H. Vezin, O. Jeannin, M. Fourmigué, B. Büchner, V. Kataev, S. Bertaina: Coherent Spin Dynamics of Solitons in the Organic Spin Chain Compounds (*o*-DMTTF)₂X (X = Cl, Br)

11:30 E. Vavilova, M. Iakovleva, T. Salikhov, H.-J. Grafe, E. Zvereva, V. Nalbandyan, A. Vasiliev, A. Möller, B. Büchner, V. Kataev: Spin Dynamics in the System with Honeycomb Lattice with Defects and Frustration Probed by Nuclear Magnetic Resonance Technique

11:50 I. Gimazov, Yu. Talanov, T. Adachi: Microwave Absorption Study of Charge Density Waves in La_{2-x}Sr_xCuO₄ Crystals

12:10 A. V. Semeno, M. I. Gilmanov, N. E. Sluchanko, N. Yu. Shitsevalova, V. B. Filipov, S. V. Demishev: Anomalous Features of Antiferromagnetic Resonance in GdB₆

12:30 A. V. Shchepetilnikov, D. D. Frolov, Yu. A. Nefyodov, I. V. Kuskushkin, L. Tiemann, C. Reichl, W. Dietsche, W. Wegscheider: Electron Spin Resonance in 2D Systems Formed in [001] AlAs Quantum Wells

Session: Modern Methods of Magnetic Resonance*Chair: U. Eichhoff*

Invited Talks

14:30 R. D. Britt: X band CW EPR Studies of Chemical Reactions of Relevance to Renewable Fuels

15:00 K. M. Salikhov, M. M. Bakirov, B. Bales, R. T. Galeev, I. T. Khairuzhdinov: Peculiar Features of the Spectrum Saturation Effect When the Spectral Diffusion Operates

Oral Talk

- 15:30 *A. D. Gulko, F. S. Dzheparov, D. V. Lvov, A. N. Tyulyusov*: Kinetics of the Polarization Transfer in the Disordered Spin System ^8Li - ^6Li of LiF Single Crystal

Session: Low-Dimensional Systems and Nano-Systems

Chair: G. G. Khaliullin

Invited Talks

- 16:10 *N. G. Romanov, R. A. Babunts, A. G. Badalyan, P. G. Baranov*: High-Frequency Magnetic Resonance and Cross-Relaxation Effects in Rare Earth Doped YAG
- 16:40 *V. Glazkov, Y. Krasnikova, A. Pomomaryov, S. Zvyagin, D. Schmidiger, K. Povarov, S. Galeski, A. Zheludev*: ESR Study of a Spin Ladder Magnet with Defects
- 17:10 *A. I. Smirnov, T. A. Soldatov, K. Yu. Povarov, E. Wulf, A. Mannig, A. Zheludev*: Microwave Dielectric Anomaly in $S = 1$ Quantum Antiferromagnet at Spin Gap Closing

Oral Talks

- 17:40 *E. Skorokhodov, M. Sapozhnikov, R. Gorev, V. Mironov*: Magnetic Resonance Force Spectroscopy of Permalloy Microstrips
- 18:00 *O. G. Udalov, E. S. Demidov, S. N. Vdovichev, N. S. Gusev, S. A. Gusev, V. V. Rogov, D. A. Tatarsky, I. S. Beloborodov, O. L. Ermolaeva, A. A. Fraerman*: Defining the Interlayer Interaction in Magnetic Multilayer Structures on the Base of the FMR Peaks Asymmetry

18:30 **Poster Session**

THURSDAY, September 27th, 2018

Hall Tukai**Plenary Lectures**

Chair: M. Bowman

- 09:00 *W. Lubitz*: Biological Hydrogen Conversion Studied by EPR and NMR Techniques
- 09:40 *Ch. Griesinger*: Structure and Dynamics of Micro- and Macromolecules by NMR

Session: Perspective of Magnetic Resonance in Science and Spin-Technology*Chair: K. Earle*

Invited Talks

10:40 *G. Gescheidt*: *In situ* Irradiation in NMR, Some Concepts and Applications11:10 *Yu. M. Bunkov*: Excited Coherent Quantum States

Oral Talk

11:40 *V. Sakhin, A. Kiyamov, E. Kukovitsky, N. Garifyanov, R. Khasanov, Yu. Talanov, G. Teitel'baum*: Magnetic Moments in Topological Insulators Studied by EPR**Session: Electron Spin Based Methods for Electronic and Spatial Structure Determination in Physics, Chemistry and Biology***Chair: S. Okubo*

Invited Talk

12:00 *S. K. Saxena*: Cu^{2+} -Ion as an ESR Probe of Protein Structure

Oral Talks

12:30 *A. G. Matveeva, V. M. Nekrasov, A. G. Maryasov*: Analytical Solution of the PELDOR Inverse Problem Using the Integral Mellin Transform12:50 *S. V. Anishchik, K. L. Ivanov*: Effective Method of Level Anti-Crossing Spectra of NV Centers in Diamond Calculation13:10 *M. Gafurov, B. Gizatullin, A. Rodionov, G. Mamin, C. Mattea, S. Stapf, S. Orlinskii*: Interaction of Native Protons with the Intrinsic Stable Radicals in Crude Oil as Revealed by ENDOR and DNP Measurements13:30 *F. Shagieva, S. Zaiser, P. Neumann, D. B. R. Dasari, R. Stöhr, A. Denisenko, R. Reuter, C. A. Meriles, J. Wrachtrup*: Microwave-Assisted Cross-Polarization of Nuclear Spin Ensembles from Optically-Pumped Nitrogen-Vacancy Centers in Diamond**Zavoisky Readings (Kazan Federal University)**14:45 *V. Dmitriev*: Magnetic Resonance in Superfluid He-3

FRIDAY, September 28th, 2018

Hall Tukai

Plenary Lectures

Chair: *G. Gescheidt*

- 09:00 *Yu. G. Kusrayev*: Optical Orientation of Magnetic Polarons in Diluted Magnetic Semiconductors
- 09:40 *A. Yurkovskaya, O. Morozova, A. Kiryutin, H.-M. Vieth, R. Z. Sagdeev, K. Ivanov*: Light-Induced Nuclear Hyperpolarization as a Sensitive Tool for Detection of Illusive Radicals of Biomolecules

Session: Other Applications of Magnetic Resonance

Chair: *R. M. Eremina*

Invited Talks

- 10:35 *V. I. Volkov*: Ionic and Molecular Transport in Solid Electrolytes on Magnetic Resonance Data
- 11:05 *S. V. Mironov*: Electrodynamics of Superconductor/Ferromagnet Hybrids
- 11:35 *B. Rameev*: Applications of Magnetic Resonance and Microwave Techniques for Identification of Liquid Materials

Oral Talks

- 12:05 *Y. Krupskaya, M. Schäpers, A.U.B. Wolter, H.-J. Grafe, E. Vavilova, A. Möller, B. Büchner, V. Kataev*: Magnetic Resonance Study of BaAg₂Cu[VO₄]₂ Quantum Magnet
- 12:25 *G. V. Mozzhukhin, G. S. Kupriyanova, A. Maraşlı, S. Mamedazizov, B. Z. Rameev*: NMR Investigation of ¹⁴N Quadrupole Coupling Interactions in Liquids
- 12:45 *I. A. Golovchanskiy, N. N. Abramov, V. S. Stolyarov, V. V. Bolginov, V. V. Ryazanov, A. A. Golubov, A. V. Ustinov*: Ferromagnet/Superconductor Hybridization for Magnonic Applications
- 13:20 *V. A. Ulanov, I. V. Yatsyk, R. R. Zainullin, A. M. Sinicin*: EPR of Gd³⁺ Centers in Pb_{1-x}Gd_xS Narrow Gap Semiconductor Crystals: Observation of “Reversed” Dyson Profiles of the EPR Lines

- 13:40 *V. Soltamov, C. Kasper, G. V. Astakhov, S. A. Tarasenko, A. V. Poshakinskiy, A. N. Anisimov, P. G. Baranov, V. Dyakonov*: Spectral Hole Burning Spectroscopy of Silicon Vacancy-Related Centers in SiC

Session: Medical Physics

Chair: M. R. Gafurov

Oral Talks

- 14:00 *L. Galiullina, G. Musabirova, A. Aganov, V. Klochkov, H. A. Scheidt, D. Huster*: Interaction of Statins with Different Model Membranes Studied by NMR Spectroscopy
- 14:20 *S. V. Kuzin, N. A. Chumakova, E. N. Golubeva, A. A. Korotkevich*: Spectra Convolution for Quantitative Analysis in EPR Spectroscopy
- 14:40 *S. Yurtaeva*: Living Systems Can Produce Magnetic Iron Oxide Crystals. EPR Spectroscopy Data

POSTER SESSIONS

1. *M. M. Akhmetov, G. G. Gumarov, V. Yu. Petukhov, M. Yu. Volkov:* NMR Investigation of Sodium Gluconate
2. *E. M. Alakshin, E. I. Kondratyeva, V. V. Kuzmin, K. R. Safiullin, A. A. Stanislavovas, A. V. Savinkov, A. V. Klochkov, M. S. Tagirov:* ^3He NMR in Contact with Nanoparticles
3. *V. I. Alshits, E. V. Darinskaya, M. V. Koldaeva, E. A. Petrzhik:* Low-Frequency RYDMR in Mechanical Properties of Crystals
4. *L. K. Aminov, I. N. Kurkin, A. V. Lovchey, R. M. Rakhmatullin:* EPR Spectra in CaF_2 Crystals Doped with CeO_2
5. *S. V. Anishchik, V. I. Borovkov, A. R. Melnikov, V. G. Vins, D. G. Bagryantsev, A. P. Yelisseyev:* Influence of Magnetic Field on the Luminescence from X-irradiated Diamonds
6. *N. V. Anisimov, A. G. Agafonnikova:* The Application of the Clinical MR Scanner for Multinuclear Research
7. *E. Anisimova, D. Gafurov, G. Raganyan, E. Zvereva, V. Nalbandyan, A. Vasiliev, E. Vavilova:* NMR Study of Magnetic Properties of New Triangle-Lattice Compound A_2MnTeO_6
8. *M. M. Bakirov, K. M. Salikhov, R. T. Galeev, I. T. Khairuzhdinov, B. Bales:* CW Saturation of Nitroxyl Radicals in Liquids
9. *A. A. Bayazitov, Ya. V. Fattakhov, V. E. Khundiryakov, A. R. Fakhrutdinov, V. A. Shagalov, R. Sh. Khabipov:* Receiving and Transmitting System for a Specialized Small-Sized Magnetic Resonance Scanner with a 0.4 Tesla Field
10. *D. S. Blokhin, R. Garifullin, T. I. Abdullin, V. V. Klochkov:* Spatial Structure of YRFK Peptides with Triphenylphosphonium Moiety by NMR Spectroscopy
11. *V. V. Chirkov, G. G. Gumarov, V. Yu. Petukhov, M. M. Bakirov:* Peculiarities of Low Temperature FMR in Ion Beam Synthesized Co Silicide Films
12. *A. I. Chushnikov, M. I. Ibragimova, G. V. Cherepnev, V. Yu. Petukhov, I. V. Yatsyk:* Fe^{3+} -Cytochromes Signals in EPR Spectra of Sportsmen's Serum Blood
13. *A. G. Danilova, A. N. Turanov, B. I. Khairutdinov, Yu. F. Zuev:* The Study of Protein Ligand Interaction by Water LOGSY NMR

14. *S. V. Demishev, M. I. Gilmanov, A. N. Samarin, A. V. Semeno, N. E. Sluchanko, N. Yu. Shitsevalova, V. B. Filipov, V. V. Glushkov*: Electron Spin Resonance Study of $\text{Sm}_{1-x}\text{Eu}_x\text{B}_6$ Solid Solutions
15. *S. V. Demishev, M. I. Gilmanov, A. N. Samarin, A. V. Semeno, N. E. Sluchanko, N. Yu. Shitsevalova, V. B. Filipov, V. V. Glushkov*: The Nature of Electron Spin Resonance in CeB_6
16. *M. L. Falin, V. A. Latypov, A. M. Leushin, G. M. Safiullin, A. A. Shakirov, A. A. Shavelev*: Structural Model of the Yb^{3+} Ion in the LiCaAlF_6 Single Crystal
17. *E. Frolova, O. Turanova, M. Volkov, L. Mingalieva, L. Gaftiyatullin, I. Ovchinnikov, A. Turanov*: New Fe(III) Complexes with Tetradentate Schiff Bases and Photosensitive Ligands
18. *A. R. Gafarova, G. G. Gumarov, I. A. Goenko*: Study of the Conformation of γ -Irradiated Calcium Gluconate by the ESR Method
19. *A. R. Gafarova, G. G. Gumarov, I. A. Goenko, M. M. Bakirov, R. B. Zaripov, V. Yu. Petukhov*: Study of γ -Irradiated Calcium Gluconate by X- and Q-EPR
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21. *Kh. L. Gainutdinov, V. V. Andrianov, G. G. Yafarova, S. G. Pashkevich, M. O. Dosina, Y. P. Stukach, T. Kh. Bogodvid, V. S. Iyudin, A. A. Denisov, V. A. Kulchitchky*: Nitric Oxide Production in the Rat Hippocampus in Acute Phase of Ischemic and Hemorrhagic Insult: Participation of NO-synthase
22. *Yu. V. Goryunov, A. N. Nateprov*: Spin-Spin Interactions in AFM Dirac Semimetals: Diluted and Enriched Cases
23. *T. Gavrilova, A. Yagfarova, I. Gilmudtinov, J. Deeva, I. Yatsyk, N. Lyadov, Y. Kabirov, T. Chupakhina, R. Eremina*: Magnetic Proximity Effects in $\text{CaCu}_3\text{Ti}_4\text{O}_{12}$ -Based Composites
24. *L. Gerasimova, N. Useinov*: Magnetoresistance of Magnetic NanoContact with Taking Account Gradients of Chemical Potentials
25. *A. I. Gumarov, I. V. Yanilkin, I. R. Vakhitov, B. M. Khaliulin, A. A. Rodionov, R. V. Yusupov, M. N. Aliyev, L. R. Tagirov, V. I. Nuzhdin, R. I. Khaibullin*: FMR Studies of Epitaxial Pd Films Implanted with Iron Ions
26. *M. Iakovleva, E. Vavilova, H.-J. Grafe, A. Alfonsov, B. Büchner, Y. Skourski, R. Nath, V. Kataev*: Signature of the Field Induced

- Quantum Phase Transition in the Low-Dimensional Magnet BiCoPO₅
27. *N. Ibrayev, D. Afanasyev*: Time Features of the Magnetic Effect on the Luminescence of Poly(9,9-di-n-octylfluorenyl-2,7-diyl) Films with Additive of KI Salt
 28. *N. Ibrayev, D. Afanasyev, A. Nurmakhanova*: Effect of Magnetic Field on the Recombination Luminescence of Polymer Semiconductor Composites
 29. *K. Iskhakova, A. Sorokina, A. Starshova*: Study of Synthetic Hydroxyapatites by EPR
 30. *D. Ivanov, V. Scirda*: Resinous-Asphaltene Aggregates by NMR Analysis
 31. *A. V. Ivanova, D. N. Shurpik, D. A. Sevastyanov, A. N. Turanov, E. A. Ermakova, I. I. Stoykov, Yu. F. Zuev, B. I. Khairutdinov*: Intramolecular Dynamic of Pillar[5]arene by NMR Spectroscopy Data and Computer Modeling
 32. *A. Kamashev, R. Zagidullin, D. Pavlov, I. Piyanzina, D. Tayurskii, R. Mamin*: Heterointerfaces Composed of Complex Ferroelectric Oxides: an Experimental Insight
 33. *Yu. E. Kandrashkin, A. A. Sukhanov, V. F. Tarasov*: Rescaling of 2D ESEEM Data for Inverse Problem Solving
 34. *I. Khairuzhdinoy, R. Zaripov, K. Salikhov*: New Approach of Determination T_1 and T_2 Relaxation Times by Using the CPMG Pulse Sequence
 35. *T. Khanipov, N. Nurgazizov, A. Zagitova, A. Bukharaev, L. R. Tagirov*: Strain-Induced Rotation of Magnetic Easy Axis in Permalloy Microparticles Studied by Ferromagnetic Resonance
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 38. *M. I. Kodess, M. A. Ezhikova, O. S. Ermakova, Y. A. Azev*: NMR Structural Elucidation of Indole-3-Carbaldehyde Phenylhydrazones

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