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Education & Career

1987-1989	Physical-Mathematical Specialized Boarding School, Novosibirsk, Russia
1988	Phillips Academy, Andover, MA, USA
1994	Master of Science Honors Degree, Novosibirsk State University
1995-1998	Junior researcher, Boreskov Institute of Catalysis (BIC)
1998	Ph.D., Institute of Kinetics and Combustion of SB RAS
1998-2000	Researcher at the Boreskov Institute of Catalysis
2000-2008	Scientific secretary of the Boreskov Institute of Catalysis
2003-2005	Postdoctoral fellow at Fritz-Haber Institute of Max-Planck Society, Berlin
2008 till now	Head of laboratory at the Boreskov Institute of Catalysis
2008-2011	Lecturer at Novosibirsk State University "The structure and properties of magnetics. Physical method to investigate magnetic properties."
2009	Habilitation in Physical Chemistry "Size effects and interparticle interactions in electron magnetic resonance spectroscopy of dispersed magnetics and catalytic systems based on them."
2009 till now	Vice-director of the Boreskov Institute of Catalysis, Head of Physicochemical Methods Department, BIC
2012 till now	Lecturer at Novosibirsk State University "Thermodynamics of disperse systems and surface phenomena"
2014 till now	Head of the Scientific Educational Centre of National Research University NSU "Energy efficient catalysis"

Scientific expertise & interests

Prof. Oleg N. Martyanov currently is a Vice-director at the Boreskov Institute of Catalysis (BIC) and the head of the BIC Department of Physicochemical Methods. The main area of the scientific researches is connected to the development and application of different physical-chemical methods for *in situ* studies of the structure and properties of catalysts, sorbent and other functional materials as well as multicomponent hydrocarbon systems and processes including those in supercritical fluids. Oleg N. Martyanov is the author of more than 50 papers in the prestigious peer-reviewed journals and more than 100 reports at international and national conferences.

Honors

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| 2002 | National Prize for young talented scientists |
| 2005 | Zamaraev prize for the best work made by young scientists in SB Russian Academy of Science in the field of the development of the Physical methods of researches in Chemistry |
| 2005 | Russian Federation President Prize for the outstanding young scientists |
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Selected Publications

- Gabrienko A.A., Morozov E.V., Subramani V., Martyanov O.N., and Kazarian S.G.
Chemical Visualization of Asphaltenes Aggregation Processes Studied in Situ with ATR-FTIR Spectroscopic Imaging and NMR Imaging
J. Phys. Chem. **119** (2015) 2646
- Balaev D.A., Poperechny I.S., Krasikov A.A., Shaikhutdinov K.A., Dubrovskiy A.A., Popkov S.I., Balaev A.D., Yakushkin S.S., Bukhtiyarova G.A., Martyanov O.N., and Raikher Y.L.
Dynamic magnetization of epsilon-Fe₂O₃ in pulse field: Evidence of surface effect
J. Appl. Phys. **117** (2015) 063908
- Trukhan S.N., Yudanov V.F., Gabrienko A.A., Subramani V., Kazarian S.G., and Martyanov O.N.
In situ ESR study of molecular dynamics of asphaltenes at elevated temperature and pressure
Energy & Fuel **28** (2014) 6315
- Gabrienko A.A., Subramani V., Martyanov O.N., and Kazarian S.G.
Correlation between asphaltene stability in n-heptane and crude oil composition revealed with in situ chemical imaging
Adsorption Science & Technology **32** (2014) 243
- Kirillov V.L., Balaev D.A., Semenov S.V., Shaikhutdinov K.A., and Martyanov O.N.
Size control in the formation of magnetite nanoparticles in the presence of citrate ions
Materials Chemistry and Physics **145** (2014) 75
- Balaev D.A., Dubrovskiy A.A., Shaykhutdinov K.A., Bayukov O.A., Yakushkin S.S., Bukhtiyarova G.A., and Martyanov O.N.
Surface effects and magnetic ordering in few-nanometer-sized -Fe₂O₃ particles
J. Appl. Phys. **114** (2013) 163911
- Trukhan S.N., Yudanov V.F., and Martyanov O.N.
The effect of clustering of VO²⁺ ions in sub- and supercritical water. An in situ EPR study
Russian J. Phys. Chemistry B **7** (2013) 924
- Chibiryayev A.M., Kozhevnikov I.V., and Martyanov O.N.
High-temperature reaction of SiO₂ with methanol: Nucleophilic assistance of some N-unsubstituted benzazoles
Applied Catalysis A: General **456** (2013) 159
- Trukhan S.N., Yudanov V.F., Tormyshev V.M., Rogozhnikova O.Y., Trukhin D.V., Bowman M.K., Krzyaniak M.D., Chen H., and Martyanov O.N.
Hyperfine Interactions of Narrow-line Trityl Radical with Solvent Molecules
J. Magnetic Resonance **233** (2013) 29
- Yakushkin S.S., Bukhtiyarova G.A., and Martyanov O.N.
Formation conditions of a magnetically ordered phase ε-Fe₂O₃. A FMR in situ study
J. Struct. Chem. **54** (2013) 876

11. Kozhevnikov I.V., Nuzhdin A.L., Bukhtiyarova G.A., Martyanov O.N., and Chibiryaev A.M. **Tetramethyl orthosilicate as a sharp-selective catalyst of C3-methylation of indole by supercritical methanol** J. Supercritical Fluids **69** (2012) 82
12. Sokolov A.E., Edelman I.S., Zabluda V.N., Petrakovskaya E.A., Aleksandrovskii A.S., Shubin A.A., Trukhan S.N., and Martyanov O.N. **Magneto-optical activity of crude oil and its heavy fractions** Optics and Spectroscopy **112** (2012) 755
13. Yakushkin S.S., Dubrovskiy A.A., Balaev D.A., Shaykhutdinov K.A., Bukhtiyarova G.A., and Martyanov O.N. **Magnetic properties of few nanometers epsilon-Fe₂O₃ nanoparticles supported on the silica** J. Appl. Phys. **111** (2012) 044312
14. Shuvaeva M.A., Delii I.V., Martyanov O.N., Bayukov O.A., et al. **Effect of calcination temperature on the physicochemical and catalytic properties of FeSO₄/SiO₂ in hydrogen sulfide oxidation** Kinetics and Catalysis, **52** (2011) 896
15. Trukhan S.N., Yudanov V.F., and Martyanov O.N. **Electron spin resonance of VO²⁺ radical-ion in sub- and supercritical water** J. Supercritical Fluids **57** (2011) 247
16. Morozov E.V., Martyanov O.N., Volkov N.V., and Falaleev O.V. **NMR Imaging of Heavy Crude Oil for Softening Detection under Heat Treatment** J. Mater. Sci. Engineering A **1** (2011) 545
17. Tuzikov F.V., Larichev Yu.V., Borisova L.S., and Martyanov O.N. **Small-angle scattering study of colloidal particles in .heavy crude oils** Petroleum Chemistry **51** (2011) 281
18. Bukhtiyarova G.A., Shuvaeva M.A., Bayukov O.A., Yakushkin S.S., and Martyanov O.N. **Facile synthesis of nanosized ε-Fe₂O₃ particles on the silica support** J. Nanoparticle Res. **13** (2011) 5527
20. Kozhevnikov I.V., Nuzhdin A.L., and Martyanov O.N. **Transformation of petroleum asphaltenes in supercritical water** J. Supercritical Fluids **55** (2010) 217
21. Yakushkin S.S., Trukhan S.N., Yudanov V.F., Bukhtiyarova G.A., and Martyanov O.N. **Features of EPR Application to Systems Containing Paramagnetic Centers and Ferromagnetic Nanoparticles** Appl. Magn. Reson. **38** (2010) 495
22. Bukhtiyarova G.A., Martyanov O.N., Yakushkin S.S., and Bukhtiyarova G.A. **State of iron in nanoparticles prepared by impregnation of silica gel and aluminum oxide with FeSO₄ solutions** Phys. Solid State **52** (2010) 826
23. Martyanov O.N., Risse T., and Freund H -J. **Influence of Pd codeposition on the magnetic properties of Co particles on alumina/NiAl(110)** J. Chem. Phys. **129** (2008) 114703
24. Martyanov O.N., Trukhan S.N., and Yudanov V.F. **Ferromagnetic resonance fine structure of dispersed magnets: Physical origin and applications** Appl. Magn. Reson. **33** (2008) 57
25. Martyanov O.N. and Yudanov V.F. **Formation of disperse ferromagnetic nanoparticles in zeolites in the course of thermal activation in oxygen** J. Struct. Chem. **49** (2008) 421
26. Trukhan S.N., Martyanov O.N., and Yudanov V.F. **Stepwise magnetization of dispersed ferromagnets due to magnetic interparticle interactions** Phys. Solid State **50** (2008) 456

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| 27. Felicissimo M.P., Martyanov O.N., Risse Th., and Freund H.-J.,
Characterization of a Pd–Fe bimetallic model catalyst | Surface Science
601 (2007) 2105 |
| 28. Nowitzki T., Carlsson A.F., Martyanov O., et al.
Oxidation of alumina-supported Co and Co-Pd model catalysts for the Fischer-Tropsch reaction | J. Phys. Chem. C
111 (2007) 8566 |
| 29. Martyanov O.N., Yudanov V.F., Lee R.N., et al.
Ferromagnetic resonance study of thin film antidot arrays: Experiment and micromagnetic simulations | Physical Review B
75 (2007) 174429 |
| 30. Martyanov O., Yudanov V., Lee R., and Volkov N.
FMR fine structure - A tool to investigate the spatial magnetic phase separation phenomena in manganites | Physica Status Solidi
(Rapid Research Letters)
1 , 2007, R22 |
| 31. Martyanov O.N., Yudanov V.F., Lee R.N., Nepijko S.A., Elmers H.J., Schneider C.M., and Schönhense G.
Ferromagnetic resonance investigation of collective phenomena in two-dimensional periodic arrays of Co particles | Applied Physics A
81 (2005) 679 |
| 32. Yulikov M.M., Abornev I.S., Martyanov O.N. et al.
Ferromagnetic resonance of nickel nanoparticles in an amorphous oxide matrix | Kinetics and catalysis
45 (2004) 735 |
| 33. Martyanov O.N., Lee R.N., and Yudanov V.F.
Manifestation of granular structure in FMR spectra | J. Magn. Magn. Mater.
267 (2003) 13 |
| 34. Mart'yanov O.N., Li R.N., and Yudanov V.F.
Fine structure of ferromagnetic-resonance spectra of disperse magnets | J. Exper. Theor. Phys.
75 (2002) 638 |
| 35. Yudanov V.F., Martyanov O.N., and Molin Yu.N.
Noise-like Magnetic Resonance Absorption in Zeolites | Chem. Phys. Lett.
284 (1998) 435 |

Recent projects

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| – Structural and Dynamics Characteristics of SCF: from Spin Probes to the Mechanism of Heterogeneous Catalytic Reactions | Russian Foundation for Basic Research № 11-03-12049-офи-м |
| – Catalytically active Si-containing compounds forming in the supercritical fluid in the presence of SiO ₂ : formation mechanism and the role in high-temperature reactions with lower alcohols | Russian Foundation for Basic Research № 13-03-00595-a |
| – The relationship of the magnetic and catalytic properties of systems based on the ε-Fe ₂ O ₃ - the role of size effects | Russian Academy of Science Program “Fundamentals of nanotechnologies and nanomaterials”, project № 24.40 |
| – Magnetotransport systems in catalytic, biological, and sorption technologies. Synthesis and physicochemical study of magnetic catalysts, sorbents and carriers | Interdisciplinary project of SB RAS, project № 45 |
| – Centre of Applied Research “Energy efficient heat exchange and catalysis: UNIHEAT” (BIC-Imperial College London-BP-NSU) | Grant agreement №64 (BP, Skolkovo) |
| – The stability and evolution of dispersed hydrocarbon systems of heavy oils under intensive external impacts studied with advance spectroscopic methods <i>in situ</i> | Russian Science Foundation, project № 15-19-00119 |