

# Danila A. Barskiy, PhD

Postdoctoral Fellow  
The University of California, Berkeley

227B Stanley Hall,  
College of Chemistry, UC Berkeley  
Berkeley, CA 94720

Phone: (510) 642-1343  
E-mail: [barskiy@berkeley.edu](mailto:barskiy@berkeley.edu)  
Website: [danilabarskiy.com](http://danilabarskiy.com), [Google Scholar](#)

## Personal

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Date of Birth October 18, 1990  
Place of Birth Irkutsk (Russian Federation)  
Nationality Russian

## Education

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**2012–2015** PhD, Physical Chemistry, Novosibirsk State University (NSU), Russia  
**2010–2012** Department of Catalysis and Adsorption, Boreskov Institute of Catalysis, NSU, Russia  
**2007–2012** Specialist in Chemistry (equivalent to B.S. plus M.S. degree) *summa cum laude*,  
Faculty of Natural Sciences (Chemistry Department), NSU, Russia

## Professional experience

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**2017–present** Postdoctoral Fellow, UC Berkeley, advised by Prof. Alexander Pines  
Understanding the interplay between chemical kinetics and nuclear spin dynamics;  
development of new nuclear spin hyperpolarization technologies for NMR/MRI applications

**2015–2017** Postdoctoral Fellow, Vanderbilt University Institute of Imaging Science (VUIIS),  
advised by Prof. Eduard Chekmenev  
Development and applications of  $^1\text{H}$ ,  $^{13}\text{C}$  and  $^{15}\text{N}$  hyperpolarized contrast agents  
for NMR spectroscopy and biomedical *in vivo* magnetic resonance imaging

**2010–2015** Graduate Student Researcher, International Tomography Center, Russia  
Supervised by Dr. Kirill Kovtunov, Prof. Igor Koptuyug  
*Thesis title:* Parahydrogen-based nuclear spin hyperpolarization and its application in NMR  
spectroscopy and imaging (in Russian)  
*Main achievements:* (i) discovered new mechanistic aspects in hydrogenations of  
hydrocarbons by parahydrogen-induced polarization (PHIP) technique, (ii) developed new  
PHIP-based approaches for producing pure hyperpolarized liquids and gases,  
(iii) elaborated analytical model of the signal amplification by reversible exchange (SABRE)  
process, (iv) discovered high-field SABRE effect.

**Winter 2015** Internship at the Haldor Topsoe catalysis company, Kongens Lyngby, Denmark  
Visited the headquarter of the company, R&D laboratories and manufacturing premises,  
worked on equipment, was introduced to the industrial catalysis research workflow

**Summer 2013** Visiting scientist at Vanderbilt University, USA  
Demonstrated high-resolution MRI of propane in low and high magnetic fields. These  
results potentially enable MRI of gases for functional imaging of lungs

**2010-2012** *Specialist thesis:* Investigation of mechanisms of heterogeneous hydrogenation of  
1,3-butadiene and 1-butyne over supported metal catalysts by means of  
parahydrogen-induced polarization (In Russian)

**2007–2010** Undergraduate Student Researcher: Institute of Inorganic Chemistry, Novosibirsk Institute  
of Organic Chemistry, Boreskov Institute of Catalysis (Russia)  
Synthesized and characterized inorganic and organic compounds to advance fundamental  
chemical understanding

# Awards and synergistic activities

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- Berkeley Postdoctoral Association Postdoctoral Development Award (2018)
- Member of The American Association for the Advancement of Science (2016–present)
- Member of The American Chemical Society (2016–present)
- Reviewer – *Nature Communications*, *Advanced Drug Delivery Reviews*, *Chemical Communications*, *ChemPhysChem*, *Journal of Magnetic Resonance*, *Journal of Chemical Physics*, *Journal of Magnetism and Magnetic Materials*, and others
- A recipient of a Medal of the Russian Academy of Sciences for young scientists (2015)  
the medal is given for a series of outstanding works conducted by young scientists
- Consulting, MEL Science – visualization of chemical reactions (2015)
- Jury – Mendeleev Chemical Student Conference-Competition: Kazan-2013, Tomsk-2015
- Haldor Topsoe company scholarship (2013–2015)  
one of 5 selected recipients from more than 50 applicants
- Schlumberger company scholarship (2010–2011, 2011–2012, 2014–2015)  
scholarship is given for promising PhD students studying natural sciences
- Kirill Zamaraev Foundation scholarship (2015)  
scholarship is given to support short scientific visits of young scientists
- BP company scholarship (2013–2014), scholarship is given for promising PhD students in STEM
- Winner of the “Easy about difficult” competition (2014) for the writing of the best popular scientific article (program “Lift to the future”)
- Winner of youth research and innovation competition U.M.N.I.K. (2013)  
awards are given for promising discoveries which can have practical applications
- Vladimir Potanin Foundation scholarship (2009, 2010, 2011, 2012)  
scholarship is given for students carrying both leadership and academic success
- 1<sup>st</sup> place at Mendeleev Chemical Student Conference-Competition, Dubna (Russia), 2011
- 1<sup>st</sup> place at International Scientific Student Conference, Novosibirsk (Russia) 2011, 2012

## Publications

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### Peer-reviewed book chapters and reviews:

1. **D. A. Barskiy**, A. M. Coffey, P. Nikolaou, D. M. Mikhaylov, B. M. Goodson, R. T. Branca, G. J. Lu, M. G. Shapiro, V.-V. Telkki, V. V. Zhivonitko, *et al.* NMR Hyperpolarization Techniques of Gases. *Chem. Eur. J.*, **2017**, 23 (4), 725–751.
2. V. V. Zhivonitko, K. V. Kovtunov, I. V. Skovpin, **D. A. Barskiy**, O. G. Salnikov, I. V. Koptuyug. Catalytically Enhanced NMR of Heterogeneously Catalyzed Hydrogenations / In: *Understanding Organometallic Reaction Mechanisms and Catalysis Experimental and Computational Tools*, Ch. 7, Ed. Ananikov, Valentine P.; Wiley-VCH, Weinheim, **2014**.
3. K. V. Kovtunov, V. V. Zhivonitko, I. V. Skovpin, **D. A. Barskiy**, I. V. Koptuyug. Parahydrogen-Induced Polarization in Heterogeneous Catalytic Processes / In: *Hyperpolarization Methods in NMR Spectroscopy. Topics in Current Chemistry*, Ch. 5, Ed. Kuhn, Lars T.; Springer Berlin Heidelberg, **2013**.

### Peer-reviewed publications:

1. **D. A. Barskiy**, L. A. Ke, X. Li, V. Stevenson, N. Widarman, H. Zhang, A. Truxal, A. Pines. Rapid Catalyst Capture Enables Metal-Free para-Hydrogen-Based Hyperpolarized Contrast Agents. *J. Phys. Chem. Lett.*, **2018**, 9, 2721–2724.
2. K. V. Kovtunov, E. V. Pokochueva, O. G. Salnikov, S. F. Cousin, D. Kurzbach, B. Vuichoud, S. Jannin, E. Y. Chekmenev, B. M. Goodson, **D. A. Barskiy**, I. V. Koptuyug. Hyperpolarized NMR Spectroscopy: d-DNP, PHIP, and SABRE Techniques. *Chem. Asian J.*, **2018**, 13 (15), 1857–1871.
3. D. B. Burueva, K. V. Kovtunov, V. I. Bukhtiyarov, A. V. Bukhtiyarov, **D. A. Barskiy**, I. P. Prosvirin, I. S. Mashkovsky, G. N. Baeva, A. Y. Stakheev, I. V. Koptuyug. Selective Single-Site Pd-In Hydrogenation Catalyst for Production of Enhanced Magnetic Resonance Signals using Parahydrogen. *Chem. Eur. J.*, **2018**, 24 (11), 2547–2553.
4. **D. A. Barskiy**, R. V. Shchepin, C. P. Tanner, J. F. Colell, B. M. Goodson, T. Theis, W. S. Warren, E. Y. Chekmenev. The Absence of Quadrupolar Nuclei Facilitates Efficient <sup>13</sup>C Hyperpolarization via Reversible Exchange with Parahydrogen. *ChemPhysChem*, **2017**, 18 (12), 1493–1498.
5. **D. A. Barskiy**, K. V. Kovtunov, E. Y. Gerasimov, M. A. Phipps, O. G. Salnikov, A. M. Coffey, L. M. Kovtunova, I. P. Prosvirin, V. I. Bukhtiyarov, I. V. Koptuyug, E. Y. Chekmenev. 2D Mapping of NMR Signal Enhancement for Hyperpolarized Propane Gas. *J. Phys. Chem. C*, **2017**, 121 (18), 10038–10046.

6. **D. A Barskiy**, O. G. Salnikov, A. S. Romanov, M. A. Feldman, A. M. Coffey, K. V. Kovtunov, I. V. Koptuyug, E. Y. Chekmenev. NMR Spin-Lock Induced Crossing (SLIC) dispersion and long-lived spin states of gaseous propane at low magnetic field (0.05 T). *J. Magn. Reson.*, **2017**, 276, 78–85.
7. R. V. Shchepin, **D. A. Barskiy**, A. M. Coffey, M. A. Feldman, L. M. Kovtunova, V. I. Bukhtiyarov, K. V. Kovtunov, B. M. Goodson, I. V. Koptuyug, E. Y. Chekmenev. Robust Imidazole-<sup>15</sup>N<sub>2</sub> Synthesis for High-Resolution Low-Field (0.05 T) <sup>15</sup>N Hyperpolarized NMR Spectroscopy. *ChemistrySelect*, **2017**, 2 (16), 4478–4483.
8. Z. Zhou, J. Yu, J. F. Colell, R. Laasner, A. W. Logan, **D. A. Barskiy**, R. V. Shchepin, E. Y. Chekmenev, V. Blum, W. S. Warren, T. Theis. *J. Phys. Chem. Lett.*, **2017**, 8 (13), 3008–3014.
9. L. B. Bales, K. V. Kovtunov, **D. A. Barskiy**, R. V. Shchepin, A. M. Coffey, L. M. Kovtunova, A. V. Bukhtiyarov, M. A. Feldman, V. I. Bukhtiyarov, E. Y. Chekmenev, I. V. Koptuyug, B. M. Goodson. Aqueous, Heterogeneous para-Hydrogen-Induced <sup>15</sup>N Polarization. *J. Phys. Chem. C*, **2017**, 121 (28), 15304–15309.
10. J. Colell, A. Logan, Z. Zhou, R. V. Shchepin, **D. A. Barskiy**, G. X. Ortiz Jr., Q. Wang, S. J. Malcolmson, E. Y. Chekmenev, W. S. Warren, T. Theis. Generalizing, Extending, and Maximizing Nitrogen-15 Hyperpolarization induced by Parahydrogen in Reversible Exchange. *J. Phys. Chem. C*, **2017**, 121 (12), 6626–6634.
11. A. M. Coffey, M. A. Feldman, R. V. Shchepin, **D. A. Barskiy**, M. L. Truong, W. Pham, E. Y. Chekmenev. High-resolution hyperpolarized in vivo metabolic <sup>13</sup>C spectroscopy at low magnetic field (48.7 mT) following murine tail-vein injection. *J. Magn. Reson.*, **2017**, 281, 246–252.
12. D. B. Burueva, A. S. Romanov, O. G. Salnikov, V. V. Zhivonitko, Y.-W. Chen, **D. A. Barskiy**, E. Y. Chekmenev, D. W. Hwang, K. V. Kovtunov, I. V. Koptuyug. Extending the Lifetime of Hyperpolarized Propane Gas through Reversible Dissolution. *J. Phys. Chem. C*, **2017**, 212 (8), 4481–4487.
13. O. G. Salnikov, D. B. Burueva, E. Y. Gerasimov, A. V. Bukhtiyarov, A. K. Khudorozhkov, I. P. Prosvirin, L. M. Kovtunova, **D. A. Barskiy**, V. I. Bukhtiyarov, K. V. Kovtunov, I. V. Koptuyug. The effect of oxidative and reductive treatments of titania-supported metal catalysts on the pairwise hydrogen addition to unsaturated hydrocarbons. *Catal. Today*, **2017**, 283, 82–88.
14. **D. A. Barskiy**, R. V. Shchepin, A. M. Coffey, T. Theis, W. S. Warren, B. M. Goodson, E. Y. Chekmenev. Over 20% <sup>15</sup>N Hyperpolarization in Under One Minute for Metronidazole, an Antibiotic and Hypoxia Probe. *J. Am. Chem. Soc.*, **2016**, 138 (26), 8080–8083.
15. **D. A. Barskiy**, O. G. Salnikov, R. V. Shchepin, M. Feldman, A. M. Coffey, K. V. Kovtunov, I. V. Koptuyug, E. Y. Chekmenev. NMR SLIC Sensing of Hydrogenation Reactions Using Parahydrogen in Low Magnetic Fields. *J. Phys. Chem. C*, **2016**, 120 (51), 29098–29106.
16. **D. A. Barskiy**, A. N. Pravdivtsev, K. L. Ivanov, K. V. Kovtunov, I. V. Koptuyug. A simple analytical model for signal amplification by reversible exchange (SABRE) process. *Phys. Chem. Chem. Phys.*, **2016**, 119 (6), 996–1006.
17. O. G. Salnikov, **D. A. Barskiy**, A. M. Coffey, K. V. Kovtunov, I. V. Koptuyug, E. Y. Chekmenev. Efficient Batch-Mode Parahydrogen-Induced Polarization of Propane. *ChemPhysChem*, **2016**, 17 (21), 3395–3398.
18. R. V. Shchepin, **D. A. Barskiy**, A. M. Coffey, B. M. Goodson, E. Y. Chekmenev. NMR Signal Amplification by Reversible Exchange of Sulfur-Heterocyclic Compounds Found in Petroleum. *ChemistrySelect*, **2016**, 1 (10), 2552–2555.
19. K. V. Kovtunov, **D. A. Barskiy**, O. G. Salnikov, R. V. Shchepin, A. M. Coffey, L. Kovtunova, V. I. Bukhtiyarov, I. V. Koptuyug, E. Y. Chekmenev. Toward Production of Pure <sup>13</sup>C-Hyperpolarized Metabolites Using Heterogeneous PHIP of Ethyl [1-<sup>13</sup>C]acetate. *RSC Adv.*, **2016**, 6, 69728–69732.
20. R. V. Shchepin, **D. A. Barskiy**, A. M. Coffey, T. Theis, F. Shi, W. S. Warren, B. M. Goodson, E. Y. Chekmenev. <sup>15</sup>N Hyperpolarization of Imidazole-<sup>15</sup>N<sub>2</sub> for Magnetic Resonance pH Sensing Via SABRE-SHEATH. *ACS Sensors*, **2016**, 1 (6), 640–644.
21. R. V. Shchepin, **D. A. Barskiy**, A. M. Coffey, I. V. Manzanera Esteve, E. Y. Chekmenev. Efficient Synthesis of Molecular Precursors for Para-Hydrogen-Induced Polarization of Ethyl Acetate-1-<sup>13</sup>C and Beyond. *Angew. Chem. Int. Ed.*, **2016**, 55 (20), 6071–6074.
22. K. V. Kovtunov, A. S. Romanov, O. G. Salnikov, **D. A. Barskiy**, E. Y. Chekmenev, I. V. Koptuyug. Gas Phase UTE MRI of Propane and Propene. *Tomography*, **2016**, 2 (1), 49–55.
23. R. V. Shchepin, **D. A. Barskiy**, D. M. Mikhaylov, E. Y. Chekmenev. Efficient Synthesis of Nicotinamide-1-<sup>15</sup>N for Ultrafast NMR Hyperpolarization Using Parahydrogen. *Bioconjugate Chem.*, **2016**, 27 (4), 878–882.
24. **D. A. Barskiy**, O. G. Salnikov, K. V. Kovtunov, I. V. Koptuyug. NMR Signal Enhancement for Hyperpolarized Fluids Continuously Generated in Hydrogenation Reactions with Parahydrogen. *J. Chem. Phys. A*, **2015**, 119 (6), 996–1006.
25. A. Corma, O. G. Salnikov, **D. A. Barskiy**, K. V. Kovtunov, I. V. Koptuyug. Single-Atom Gold Catalysis in the Context of Developments in Parahydrogen-Induced Polarization. *Chem. Eur. J.*, **2015**, 21 (19), 7012–7015.
26. K. V. Kovtunov, **D. A. Barskiy**, O. G. Salnikov, D. B. Burueva, A. K. Khudorozhkov, A. V. Bukhtiyarov, I. P. Prosvirin, E. Y. Gerasimov, V. I. Bukhtiyarov, I. V. Koptuyug. Strong Metal-Support Interactions for Palladium Supported on TiO<sub>2</sub> Catalysts in the Heterogeneous Hydrogenation with Parahydrogen. *ChemCatChem*, **2015**, 7 (17), 2581–2584.
27. O. G. Salnikov, D. B. Burueva, **D. A. Barskiy**, G. A. Bukhtiyarova, K. V. Kovtunov, I. V. Koptuyug. A Mechanistic Study of Thiophene Hydrodesulfurization by the Parahydrogen-Induced Polarization Technique. *ChemCatChem*, **2015**, 7 (21), 3508–3512.

28. **D. A. Barskiy**, K. V Kovtunov, I. V Koptuyug, P. He, K. A. Groome, Q. A. Best, F. Shi, B. M. Goodson, R. V. Shchepin, A. M. Coffey, K. W. Waddell, E. Y. Chekmenev. The feasibility of formation and kinetics of NMR Signal Amplification by Reversible Exchange (SABRE) at high magnetic field (9.4 T). *J. Am. Chem. Soc.*, **2014**, 136 (9), 3322–3325.
29. A. M. Coffey, K. V. Kovtunov, **D. A. Barskiy**, I. V. Koptuyug, R. V. Shchepin, K. W. Waddell, P. He, K. A. Groome, Q. A. Best, F. Shi, B. M. Goodson, E. Y. Chekmenev. High-Resolution Low-Field Molecular Magnetic Resonance Imaging of Hyperpolarized Liquids. *Anal. Chem.*, **2014**, 86(18), 9042–9049.
30. **D. A. Barskiy**, K. V. Kovtunov, I. V. Koptuyug, P. He, K. A. Groome, Q. A. Best, F. Shi, B. M. Goodson, R. V. Shchepin, M. L. Truong, A. M. Coffey, K. W. Waddell, E. Y. Chekmenev. *In situ* and *Ex situ* Low-field NMR and MRI Endowed by SABRE Hyperpolarization. *ChemPhysChem*, **2014**, 15, 4100–4107.
31. M. L. Truong, F. Shi, P. He, B. Yuan, K. N. Plunkett, A. M. Coffey, R. V. Shchepin, **D. A. Barskiy**, K. V. Kovtunov, I. V. Koptuyug, K. W. Waddell, B. M. Goodson, E. Y. Chekmenev. Irreversible Catalyst Activation Enables Hyperpolarization and Water Solubility for NMR Signal Amplification by Reversible Exchange. *J. Phys. Chem. B.*, **2014**, 118 (48), 13882–13889.
32. K. V. Kovtunov, M. L. Truong, **D. A. Barskiy**, O. G. Salnikov, V. I. Bukhtiyarov, A. M. Coffey, K. W. Waddell, I. V. Koptuyug, E. Y. Chekmenev. Propane-d<sub>6</sub> Heterogeneously Hyperpolarized by Parahydrogen. *J. Phys. Chem. C.*, **2014**, 118 (48), 28234–28243.
33. O. G. Salnikov, K. V. Kovtunov, **D. A. Barskiy**, A. K. Khudorozhkov, E. I. Inozemtseva, I. P. Prosvirin, V. I. Bukhtiyarov, I. V. Koptuyug. Evaluation of the mechanism of heterogeneous hydrogenation of  $\alpha,\beta$ -unsaturated carbonyl compounds via pairwise hydrogen addition. *ACS Catalysis*, **2014**, 4, 2022–2028.
34. O. G. Salnikov, **D. A. Barskiy**, D. B. Burueva, Y. K. Gulyaeva, B. S. Balzhinimaev, K. V. Kovtunov, I. V. Koptuyug. Evaluation of Activation Energies for Pairwise and Non-Pairwise Hydrogen Addition to Propyne Over Pd/Aluminosilicate Fiberglass Catalyst by PHIP. *Appl. Magn. Reson.*, **2014**, 45, 1051–1061.
35. K. V. Kovtunov, M. L. Truong, **D. A. Barskiy**, I. V. Koptuyug, A. M. Coffey, K. W. Waddell, E. Y. Chekmenev. Long-Lived Spin States for Low-field Hyperpolarized Gas MRI. *Chem. Eur. J.*, **2014**, 20 (45), 14629–14632.
36. K. V. Kovtunov, **D. A. Barskiy**, A. M. Coffey, M. L. Truong, O. G. Salnikov, A. K. Khudorozhkov, E. I. Inozemtseva, I. P. Prosvirin, V. I. Bukhtiyarov, K. W. Waddell, E. Y. Chekmenev, I. V. Koptuyug. High-resolution 3D Proton Hyperpolarized Gas MRI Enabled by Parahydrogen and Rh/TiO<sub>2</sub> Heterogeneous Catalyst. *Chem. Eur. J.*, **2014**, 20 (37), 11636–11639.
37. K. V. Kovtunov, **D. A. Barskiy**, R. V. Shchepin, A. M. Coffey, K. W. Waddell, I. V. Koptuyug, E. Y. Chekmenev. Demonstration of Heterogeneous Parahydrogen Induced Polarization Using Hyperpolarized Agent Migration from Dissolved Rh (I) Complex to Gas Phase. *Anal. Chem.*, **2014**, 86 (13), 6192–6196.
38. K. V. Kovtunov, **D. A. Barskiy**, O. G. Salnikov, A. K. Khudorozhkov, V. I. Bukhtiyarov, I. P. Prosvirin, I. V. Koptuyug. Parahydrogen-Induced Polarization (PHIP) in heterogeneous hydrogenation over bulk metals and metal oxides. *Chem. Commun.*, **2014**, 50, 875–878.
39. K. V. Kovtunov, V. V. Zhivonitko, I. V. Skovpin, **D. A. Barskiy**, O. G. Salnikov, I. V. Koptuyug. Toward Continuous Production of Catalyst-Free Hyperpolarized Fluids Based on Biphasic and Heterogeneous Hydrogenations with Parahydrogen. *J. Phys. Chem. C.*, **2013**, 117 (44), 22887–22893.
40. **D. A. Barskiy**, K. V. Kovtunov, A. Primo, A. Corma, R. Kaptein; I. V. Koptuyug. Selective Hydrogenation of 1,3-Butadiene and 1-Butyne over a Rh/Chitosan Catalyst. *ChemCatChem*, **2012**, 4 (12), 2031–2035.
41. K. V. Kovtunov, I. E. Beck, V. V. Zhivonitko, **D. A. Barskiy**, V. I. Bukhtiyarov, I. V. Koptuyug. Heterogeneous addition of H<sub>2</sub> to double and triple bonds over supported Pd catalysts. *Phys. Chem. Chem. Phys.*, **2012**, 14, 11008–11014.

## Selected oral and poster presentations

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1. **D. A. Barskiy**. Nuclear Spin Hyperpolarization: A Heterogeneous Approach // Proceedings of the 14<sup>th</sup> Conference “Magnetic Resonance in Porous Media”, February 20, 2018, Gainesville, USA (lecture).
2. **D. A. Barskiy**. Parahydrogen-fueled RASER: a missing link between chemistry and quantum electrodynamics // May 26, 2017, UC Berkeley (invited talk).
3. **D. A. Barskiy**, et al. Hyperpolarized propane: relaxation, long-lived spin states, and spin-lock induced crossing (SLIC) dispersion // Proceedings of the ENC-2017, 58th Experimental Nuclear Magnetic Resonance Conference, March 26–31, 2017, Asilomar, USA (poster).
4. **D. A. Barskiy**. Quantum mechanical tricks for magnetic resonance: hyperpolarization and long-lived nuclear spin states // October 14, 2016, Vanderbilt University (invited lecture).
5. **D. A. Barskiy**, et al. Understanding the interplay between the chemical kinetics and the nuclear spin dynamics for the efficient hyperpolarization by PHIP and SABRE techniques // Proceedings of the ENC-2016, 57th Experimental Nuclear Magnetic Resonance Conference, April 9–14, 2016, Pittsburg, USA, p. 89, (poster).
6. **D. A. Barskiy**, et al. Heterogeneous Parahydrogen-Induced Polarization of Propane Gas for MRI Applications. Proceedings of the EUROMAR 2015, Magnetic Resonance Conference, July 5–10, 2014, Prague, Czech Republic, p. 355, (poster).
7. **D. A. Barskiy**, et al. Low-field NMR Spectroscopy and Imaging Via Parahydrogen Based Hyperpolarization: Towards catalyst-free molecular contrast agents and MRI of industrial hydrogenation // School for young

- scientists "Magnetic Resonance and Magnetic Phenomena in Chemical and Biological Physics", Novosibirsk (Russia), September 7–11, 2014 (oral talk).
8. **D. A. Barskiy**, et al. NMR signal amplification by reversible exchange (SABRE) at high magnetic fields // International Conference on Magnetic Resonance "Euomar-2014", Zurich (Switzerland), June 29 – July 3, 2014 (poster).
  9. **D. A. Barskiy**, et al. Parahydrogen polarized propane: dependence on the reactant flow rate using heterogeneous catalyst and demonstration of fast high-resolution <sup>1</sup>H 3D MRI // 3rd annual meeting "European Network for Hyperpolarization Physics and Methodology in NMR and MRI", Zurich (Switzerland), June 27–29, 2014 (oral talk).
  10. **D. A. Barskiy**, et al. Investigation of selective heterogeneous hydrogenation of C<sub>3</sub>-C<sub>4</sub> hydrocarbons by parahydrogen-induced polarization // XI European Congress on Catalysis, Lyon (France), September 1–6, 2013 (poster).
  11. **D. A. Barskiy** et al. Parahydrogen-induced polarization for studying mechanisms of C<sub>4</sub>-hydrocarbons heterogeneous hydrogenation // School for young scientists "Magnetic Resonance and Magnetic Phenomena in Chemical and Biological Physics", Novosibirsk (Russia), July 16–21, 2012 (oral talk).
  12. **D. A. Barskiy**, et al. The study of mechanisms of 1,3-butadiene and 1-butyne hydrogenation on Pt and Pd supported catalysts by parahydrogen-induced polarization // International congress on catalysis – 2012, Munich (Germany), July 1–7, 2012 (poster and short oral presentation).
  13. **D. A. Barskiy**, et al. Selectivity control of pairwise hydrogen addition over catalytic hydrogenation of C<sub>4</sub> hydrocarbons on supported Pt and Pd catalysts // IX International conference "Mechanisms of catalytic reactions", Saint-Petersburg (Russia), October 22–25, 2012 (poster).
  14. **D. A. Barskiy**, et al. Strong NMR signal enhancement by Parahydrogen-Induced Polarization (PHIP) for study mechanism of heterogeneous hydrogenation // International Symposium and Summer School "Nuclear Magnetic Resonance in Condensed Matter", Saint-Petersburg (Russia), June 27 – July 1, 2011 (oral talk).
  15. **D. A. Barskiy**, et al. Parahydrogen-induced polarization in heterogeneous catalysis // Winter school for young scientists "Magnetic resonance and its applications - SPINUS", Saint-Petersburg (Russia), November 27 – December 3, 2011 (invited lecture, in russian).

## Teaching experience

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2010–2015	Chemistry lecturer, volunteer project "Science for kids" ( <a href="http://endowment.nsu.ru/index.php/scienceforkids/">http://endowment.nsu.ru/index.php/scienceforkids/</a> )
2012–2014	Structure of compounds, Chemical thermodynamics — seminars for 3rd year students at Novosibirsk State University

## Student Supervision

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Bea Bliemel	Undergraduate student (2018–present)
Lucia Ke	Undergraduate student (2017–present)
Hao Zhang	Undergraduate student (2017–present)
Hyun Park	Undergraduate student (2017–present)
Hubert Situ	Undergraduate student (2017–present)
Dario Gelevski	Undergraduate student (2017–present)
Elizabeth Chyn	Undergraduate student (2017–present)
Vincent Stevenson	Undergraduate student (2017–2018)
Xingyang Li	Undergraduate student (2017–2018)
Nevin Widarman	Undergraduate student (2017–2018)
Patricia Buenbrazo	Undergraduate student (2017–2017)
Anthony Phipps	Undergraduate student (2016–2016)

## Activities

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<b>Spoken Languages</b>	Russian (native), English
<b>IT proficiency</b>	Microsoft Office (Word, Power Point, Excel), ChemOffice (ChemDraw, Chem3D), Origin, Matlab, Mathematica, LaTeX, Adobe Illustrator, Prezi
<b>Hobbies</b>	Skating, Hockey, musical instruments: piano, guitar, domra (russian national musical instrument)