

Kirill V Kovtunov

List of Publications by Year in descending order

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115
papers

4,692
citations

94433

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2185
citing authors

#	ARTICLE	IF	CITATIONS
1	Gas-Phase NMR of Hyperpolarized Propane with ^1H -to- ^{13}C Polarization Transfer by PH-INEPT. <i>Applied Magnetic Resonance</i> , 2022, 53, 653-669.	1.2	6
2	Mechanisms of Methylenecyclobutane Hydrogenation over Supported Metal Catalysts Studied by Parahydrogen-Induced Polarization Technique. <i>ChemPhysChem</i> , 2022, 23, .	2.1	5
3	Mechanistic <i>in situ</i> investigation of heterogeneous hydrogenation over Rh/TiO_2 catalysts: selectivity, pairwise route and catalyst nature. <i>Faraday Discussions</i> , 2021, 229, 161-175.	3.2	18
4	Magnetic resonance imaging of catalytically relevant processes. <i>Reviews in Chemical Engineering</i> , 2021, 37, 3-29.	4.4	3
5	^{15}N NMR Hyperpolarization of Radiosensitizing Antibiotic Nimorazole by Reversible Parahydrogen Exchange in Microtesla Magnetic Fields. <i>Angewandte Chemie</i> , 2021, 133, 2436-2443.	2.0	6
6	^{15}N NMR Hyperpolarization of Radiosensitizing Antibiotic Nimorazole by Reversible Parahydrogen Exchange in Microtesla Magnetic Fields. <i>Angewandte Chemie - International Edition</i> , 2021, 60, 2406-2413.	13.8	33
7	Low-Flammable Parahydrogen-Polarized MRI Contrast Agents. <i>Chemistry - A European Journal</i> , 2021, 27, 2774-2781.	3.3	8
8	Heterogeneous Parahydrogen-Induced Polarization of Diethyl Ether for Magnetic Resonance Imaging Applications. <i>Chemistry - A European Journal</i> , 2021, 27, 1316-1322.	3.3	12
9	PHIP hyperpolarized $[1-^{13}\text{C}]$ pyruvate and $[1-^{13}\text{C}]$ acetate esters via PH-INEPT polarization transfer monitored by ^{13}C NMR and MRI. <i>Scientific Reports</i> , 2021, 11, 5646.	3.3	19
10	Synthesis and ^{15}N NMR Signal Amplification by Reversible Exchange of $[^{15}\text{N}]$ Dalfampridine at Microtesla Magnetic Fields. <i>ChemPhysChem</i> , 2021, 22, 960-967.	2.1	8
11	Heterogeneous ^1H and ^{13}C Parahydrogen-Induced Polarization of Acetate and Pyruvate Esters. <i>ChemPhysChem</i> , 2021, 22, 1389-1396.	2.1	9
12	Low-Cost High-Pressure Clinical-Scale 50% Parahydrogen Generator Using Liquid Nitrogen at 77 K. <i>Analytical Chemistry</i> , 2021, 93, 8476-8483.	6.5	20
13	Spatially resolved NMR spectroscopy of heterogeneous gas phase hydrogenation of 1,3-butadiene with <i>para</i> -hydrogen. <i>Catalysis Science and Technology</i> , 2020, 10, 99-104.	4.1	16
14	Pairwise Parahydrogen Addition Over Molybdenum Carbide Catalysts. <i>Topics in Catalysis</i> , 2020, 63, 2-11.	2.8	14
15	In Situ Monitoring of Heterogeneous Catalytic Hydrogenation via ^{129}Xe NMR Spectroscopy and Proton MRI. <i>ACS Catalysis</i> , 2020, 10, 1417-1422.	11.2	11
16	Pulse-Programmable Magnetic Field Sweeping of Parahydrogen-Induced Polarization by Side Arm Hydrogenation. <i>Analytical Chemistry</i> , 2020, 92, 1340-1345.	6.5	28
17	Quantifying the effects of quadrupolar sinks <i>via</i> ^{15}N relaxation dynamics in metronidazoles hyperpolarized <i>via</i> SABRE-SHEATH. <i>Chemical Communications</i> , 2020, 56, 9098-9101.	4.1	32
18	Parahydrogen-Induced Polarization of Diethyl Ether Anesthetic. <i>Chemistry - A European Journal</i> , 2020, 26, 13621-13626.	3.3	11

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19	Frontispiece: Parahydrogen-Induced Polarization of Diethyl Ether Anesthetic. Chemistry - A European Journal, 2020, 26, .	3.3	0
20	Deciphering the Nature of Ru Sites in Reductively Exsolved Oxides with Electronic and Geometric Metal-Support Interactions. Journal of Physical Chemistry C, 2020, 124, 25299-25307.	3.1	18
21	Pilot multi-site quality assurance study of batch-mode clinical-scale automated xenon-129 hyperpolarizers. Journal of Magnetic Resonance, 2020, 316, 106755.	2.1	9
22	Chemical Reaction Monitoring using Zero-Field Nuclear Magnetic Resonance Enables Study of Heterogeneous Samples in Metal Containers. Angewandte Chemie - International Edition, 2020, 59, 17026-17032.	13.8	26
23	Parawasserstoff-Induzierte Hyperpolarisation von Gasen. Angewandte Chemie, 2020, 132, 17940-17949.	2.0	1
24	Chemical Reaction Monitoring using Zero-Field Nuclear Magnetic Resonance Enables Study of Heterogeneous Samples in Metal Containers. Angewandte Chemie, 2020, 132, 17174-17180.	2.0	0
25	Parahydrogen-Induced Hyperpolarization of Gases. Angewandte Chemie - International Edition, 2020, 59, 17788-17797.	13.8	27
26	Helium-rich mixtures for improved batch-mode clinical-scale spin-exchange optical pumping of Xenon-129. Journal of Magnetic Resonance, 2020, 315, 106739.	2.1	6
27	Catalytic hydrogenation with parahydrogen: a bridge from homogeneous to heterogeneous catalysis. Pure and Applied Chemistry, 2020, 92, 1029-1046.	1.9	17
28	Robust In Situ Magnetic Resonance Imaging of Heterogeneous Catalytic Hydrogenation with and without Hyperpolarization. ChemCatChem, 2019, 11, 969-973.	3.7	7
29	Single-Site Heterogeneous Catalysts: From Synthesis to NMR Signal Enhancement. Chemistry - A European Journal, 2019, 25, 1420-1431.	3.3	27
30	Quasi-Resonance Fluorine-19 Signal Amplification by Reversible Exchange. Journal of Physical Chemistry Letters, 2019, 10, 4229-4236.	4.6	23
31	Low-valent homobimetallic Rh complexes: influence of ligands on the structure and the intramolecular reactivity of Rh-H intermediates. Chemical Science, 2019, 10, 7937-7945.	7.4	15
32	¹⁵ N Hyperpolarization of Dalfampridine at Natural Abundance for Magnetic Resonance Imaging. Chemistry - A European Journal, 2019, 25, 12694-12697.	3.3	18
33	Parahydrogen-Induced Polarization of ¹³ C-Acetates and ¹³ C-Pyruvates Using Sidearm Hydrogenation of Vinyl, Allyl, and Propargyl Esters. Journal of Physical Chemistry C, 2019, 123, 12827-12840.	3.1	28
34	Clinical-Scale Batch-Mode Production of Hyperpolarized Propane Gas for MRI. Analytical Chemistry, 2019, 91, 4741-4746.	6.5	23
35	Hyperpolarizing Concentrated Metronidazole ¹⁵ NO ₂ Group over Six Chemical Bonds with More than 15% Polarization and a 20-...Minute Lifetime. Chemistry - A European Journal, 2019, 25, 8829-8836.	3.3	48
36	Relaxation Dynamics of Nuclear Long-Lived Spin States in Propane and Propane-d ₆ Hyperpolarized by Parahydrogen. Journal of Physical Chemistry C, 2019, 123, 11734-11744.	3.1	18

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37	¹⁵ N MRI of SLIC-SABRE Hyperpolarized ¹⁵ N-Labelled Pyridine and Nicotinamide. Chemistry - A European Journal, 2019, 25, 8465-8470.	3.3	33
38	Heterogeneous hydrogenation of phenylalkynes with parahydrogen: hyperpolarization, reaction selectivity, and kinetics. Physical Chemistry Chemical Physics, 2019, 21, 26477-26482.	2.8	12
39	A versatile synthetic route to the preparation of ¹⁵ N heterocycles. Journal of Labelled Compounds and Radiopharmaceuticals, 2019, 62, 892-902.	1.0	7
40	Parahydrogen-Based Hyperpolarization for Biomedicine. Angewandte Chemie - International Edition, 2018, 57, 11140-11162.	13.8	251
41	Selective Single-Site Pd ^{II} In Hydrogenation Catalyst for Production of Enhanced Magnetic Resonance Signals using Parahydrogen. Chemistry - A European Journal, 2018, 24, 2547-2553.	3.3	50
42	Mechanistic Insight into the Heterogeneous Hydrogenation of Furan Derivatives with the use of Parahydrogen. ChemCatChem, 2018, 10, 1178-1183.	3.7	20
43	Effects of Deuteration of ¹³ C-Enriched Phospholactate on Efficiency of Parahydrogen-Induced Polarization by Magnetic Field Cycling. Journal of Physical Chemistry C, 2018, 122, 24740-24749.	3.1	12
44	Chemical Exchange Reaction Effect on Polarization Transfer Efficiency in SLIC-SABRE. Journal of Physical Chemistry A, 2018, 122, 9107-9114.	2.5	33
45	¹⁹ F Hyperpolarization of ¹⁵ N-3- ¹⁹ F-Pyridine via Signal Amplification by Reversible Exchange. Journal of Physical Chemistry C, 2018, 122, 23002-23010.	3.1	23
46	Hyperpolarized NMR Spectroscopy: <i>d</i> -DNP, PHIP, and SABRE Techniques. Chemistry - an Asian Journal, 2018, 13, 1857-1871.	3.3	180
47	Frontispiece: Selective Single-Site Pd ^{II} In Hydrogenation Catalyst for Production of Enhanced Magnetic Resonance Signals using Parahydrogen. Chemistry - A European Journal, 2018, 24, .	3.3	0
48	Facile Removal of Homogeneous SABRE Catalysts for Purifying Hyperpolarized Metronidazole, a Potential Hypoxia Sensor. Journal of Physical Chemistry C, 2018, 122, 16848-16852.	3.1	69
49	Synthesis of Unsaturated Precursors for Parahydrogen-Induced Polarization and Molecular Imaging of 1- ¹³ C-Acetates and 1- ¹³ C-Pyruvates via Side Arm Hydrogenation. ACS Omega, 2018, 3, 6673-6682.	3.5	33
50	Heterogeneous Parahydrogen Pairwise Addition to Cyclopropane. ChemPhysChem, 2018, 19, 2621-2626.	2.1	19
51	Bimetallic Pd-Au/Highly Oriented Pyrolytic Graphite Catalysts: from Composition to Pairwise Parahydrogen Addition Selectivity. Journal of Physical Chemistry C, 2018, 122, 18588-18595.	3.1	17
52	Recent MRI Studies on Heterogeneous Catalysis. Annual Reports on NMR Spectroscopy, 2018, 95, 83-145.	1.5	11
53	Parawasserstoff-basierte Hyperpolarisierung für die Biomedizin. Angewandte Chemie, 2018, 130, 11310-11333.	2.0	54
54	The effect of oxidative and reductive treatments of titania-supported metal catalysts on the pairwise hydrogen addition to unsaturated hydrocarbons. Catalysis Today, 2017, 283, 82-88.	4.4	20

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55	NMR Hyperpolarization Techniques of Gases. Chemistry - A European Journal, 2017, 23, 724-724.	3.3	1
56	NMR Spin-Lock Induced Crossing (SLIC) dispersion and long-lived spin states of gaseous propane at low magnetic field (0.05 T). Journal of Magnetic Resonance, 2017, 276, 78-85.	2.1	36
57	Extending the Lifetime of Hyperpolarized Propane Gas through Reversible Dissolution. Journal of Physical Chemistry C, 2017, 121, 4481-4487.	3.1	18
58	2D Mapping of NMR Signal Enhancement and Relaxation for Heterogeneously Hyperpolarized Propane Gas. Journal of Physical Chemistry C, 2017, 121, 10038-10046.	3.1	31
59	Frontispiece: NMR Hyperpolarization Techniques of Gases. Chemistry - A European Journal, 2017, 23, .	3.3	2
60	Heterogeneous Microtesla SABRE Enhancement of ¹⁵ N NMR Signals. Angewandte Chemie - International Edition, 2017, 56, 10433-10437.	13.8	58
61	Robust Imidazole- ¹⁵ N ₂ Synthesis for High-Resolution Low-Field (0.05 T) ¹⁵ N-Hyperpolarized NMR Spectroscopy. ChemistrySelect, 2017, 2, 4478-4483.	1.5	27
62	Pairwise hydrogen addition in the selective semihydrogenation of alkynes on silica-supported Cu catalysts. Chemical Science, 2017, 8, 2426-2430.	7.4	28
63	Imaging of Biomolecular NMR Signals Amplified by Reversible Exchange with Parahydrogen Inside an MRI Scanner. Journal of Physical Chemistry C, 2017, 121, 25994-25999.	3.1	25
64	Application of parahydrogen for mechanistic investigations of heterogeneous catalytic processes. Russian Chemical Bulletin, 2017, 66, 273-281.	1.5	1
65	Heterogeneous Microtesla SABRE Enhancement of ¹⁵ N NMR Signals. Angewandte Chemie, 2017, 129, 10569-10573.	2.0	27
66	Aqueous, Heterogeneous <i>para</i> -Hydrogen-Induced ¹⁵ N Polarization. Journal of Physical Chemistry C, 2017, 121, 15304-15309.	3.1	40
67	NMR Hyperpolarization Techniques of Gases. Chemistry - A European Journal, 2017, 23, 725-751.	3.3	140
68	X-H Bond Activation on Cr(III),O Sites (X = R, H): Key Steps in Dehydrogenation and Hydrogenation Processes. Organometallics, 2017, 36, 234-244.	2.3	51
69	CHAPTER 6. Catalytic Enhancement of NMR Sensitivity for Advanced Spectroscopic and Imaging Studies in Catalysis and Life Sciences. RSC Smart Materials, 2017, , 142-171.	0.1	7
70	Production of Pure Aqueous ¹³ C-Hyperpolarized Acetate by Heterogeneous Parahydrogen-Induced Polarization. Chemistry - A European Journal, 2016, 22, 16446-16449.	3.3	36
71	Catalysis and Nuclear Magnetic Resonance Signal Enhancement with Parahydrogen. Topics in Catalysis, 2016, 59, 1686-1699.	2.8	24
72	Efficient Batch-Mode Parahydrogen-Induced Polarization of Propane. ChemPhysChem, 2016, 17, 3395-3398.	2.1	13

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73	Toward production of pure ^{13}C hyperpolarized metabolites using heterogeneous parahydrogen-induced polarization of ethyl[^{13}C]acetate. RSC Advances, 2016, 6, 69728-69732.	3.6	28
74	NMR SLIC Sensing of Hydrogenation Reactions Using Parahydrogen in Low Magnetic Fields. Journal of Physical Chemistry C, 2016, 120, 29098-29106.	3.1	21
75	^1H Activation on Co ₂ O ₃ Sites: Isolated Surface Sites versus Molecular Analogs. Journal of the American Chemical Society, 2016, 138, 14987-14997.	13.7	117
76	Hydrogenation of Unsaturated Six-Membered Cyclic Hydrocarbons Studied by the Parahydrogen-Induced Polarization Technique. Journal of Physical Chemistry C, 2016, 120, 13541-13548.	3.1	20
77	A simple analytical model for signal amplification by reversible exchange (SABRE) process. Physical Chemistry Chemical Physics, 2016, 18, 89-93.	2.8	90
78	Gas Phase UTE MRI of Propane and Propene. Tomography, 2016, 2, 49-55.	1.8	21
79	Strong Metal-Support Interactions for Palladium Supported on TiO ₂ Catalysts in Heterogeneous Hydrogenation with Parahydrogen. ChemCatChem, 2015, 7, 2545-2545.	3.7	0
80	Production of Catalyst-Free Hyperpolarised Ethanol Aqueous Solution via Heterogeneous Hydrogenation with Parahydrogen. Scientific Reports, 2015, 5, 13930.	3.3	41
81	A Mechanistic Study of Thiophene Hydrodesulfurization by the Parahydrogen-Induced Polarization Technique. ChemCatChem, 2015, 7, 3508-3512.	3.7	42
82	Strong Metal-Support Interactions for Palladium Supported on TiO ₂ Catalysts in the Heterogeneous Hydrogenation with Parahydrogen. ChemCatChem, 2015, 7, 2581-2584.	3.7	54
83	NMR Signal Enhancement for Hyperpolarized Fluids Continuously Generated in Hydrogenation Reactions with Parahydrogen. Journal of Physical Chemistry A, 2015, 119, 996-1006.	2.5	47
84	Single-Atom Gold Catalysis in the Context of Developments in Parahydrogen-Induced Polarization. Chemistry - A European Journal, 2015, 21, 7012-7015.	3.3	68
85	Development of new methods in modern selective organic synthesis: preparation of functionalized molecules with atomic precision. Russian Chemical Reviews, 2014, 83, 885-985.	6.5	182
86	Propane- d_6 Heterogeneously Hyperpolarized by Parahydrogen. Journal of Physical Chemistry C, 2014, 118, 28234-28243.	3.1	71
87	The Feasibility of Formation and Kinetics of NMR Signal Amplification by Reversible Exchange (SABRE) at High Magnetic Field (9.4 T). Journal of the American Chemical Society, 2014, 136, 3322-3325.	13.7	148
88	Parahydrogen-induced polarization (PHIP) in heterogeneous hydrogenation over bulk metals and metal oxides. Chemical Communications, 2014, 50, 875-878.	4.1	50
89	Irreversible Catalyst Activation Enables Hyperpolarization and Water Solubility for NMR Signal Amplification by Reversible Exchange. Journal of Physical Chemistry B, 2014, 118, 13882-13889.	2.6	131
90	In Situ and Ex Situ Low-Field NMR Spectroscopy and MRI Endowed by SABRE Hyperpolarization. ChemPhysChem, 2014, 15, 4100-4107.	2.1	58

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91	Evaluation of Activation Energies for Pairwise and Non-Pairwise Hydrogen Addition to Propyne Over Pd/Aluminosilicate Fiberglass Catalyst by Parahydrogen-Induced Polarization (PHIP). <i>Applied Magnetic Resonance</i> , 2014, 45, 1051-1061.	1.2	8
92	Long-Lived Spin States for Low-Field Hyperpolarized Gas MRI. <i>Chemistry - A European Journal</i> , 2014, 20, 14629-14632.	3.3	65
93	High-Resolution Low-Field Molecular Magnetic Resonance Imaging of Hyperpolarized Liquids. <i>Analytical Chemistry</i> , 2014, 86, 9042-9049.	6.5	39
94	High-Resolution 3D Proton MRI of Hyperpolarized Gas Enabled by Parahydrogen and Rh/TiO ₂ Heterogeneous Catalyst. <i>Chemistry - A European Journal</i> , 2014, 20, 11597-11597.	3.3	1
95	Evaluation of the Mechanism of Heterogeneous Hydrogenation of α,β -Unsaturated Carbonyl Compounds via Pairwise Hydrogen Addition. <i>ACS Catalysis</i> , 2014, 4, 2022-2028.	11.2	36
96	High-Resolution 3D Proton MRI of Hyperpolarized Gas Enabled by Parahydrogen and Rh/TiO ₂ Heterogeneous Catalyst. <i>Chemistry - A European Journal</i> , 2014, 20, 11636-11639.	3.3	72
97	Demonstration of Heterogeneous Parahydrogen Induced Polarization Using Hyperpolarized Agent Migration from Dissolved Rh(I) Complex to Gas Phase. <i>Analytical Chemistry</i> , 2014, 86, 6192-6196.	6.5	27
98	Nuclear Spin Isomers of Ethylene: Enrichment by Chemical Synthesis and Application for NMR Signal Enhancement. <i>Angewandte Chemie - International Edition</i> , 2013, 52, 13251-13255.	13.8	42
99	Toward Continuous Production of Catalyst-Free Hyperpolarized Fluids Based on Biphasic and Heterogeneous Hydrogenations with Parahydrogen. <i>Journal of Physical Chemistry C</i> , 2013, 117, 22887-22893.	3.1	38
100	Kinetic Study of Propylene Hydrogenation over Pt/Al ₂ O ₃ by Parahydrogen-Induced Polarization. <i>Applied Magnetic Resonance</i> , 2013, 44, 279-288.	1.2	17
101	Selective Hydrogenation of 1,3-Butadiene and 1-Butyne over a Rh/Chitosan Catalyst Investigated by using Parahydrogen-Induced Polarization. <i>ChemCatChem</i> , 2012, 4, 2031-2035.	3.7	36
102	Parahydrogen-Induced Polarization in Heterogeneous Catalytic Processes. <i>Topics in Current Chemistry</i> , 2012, 338, 123-180.	4.0	100
103	Heterogeneous addition of H ₂ to double and triple bonds over supported Pd catalysts: a parahydrogen-induced polarization technique study. <i>Physical Chemistry Chemical Physics</i> , 2012, 14, 11008.	2.8	56
104	Role of Different Active Sites in Heterogeneous Alkene Hydrogenation on Platinum Catalysts Revealed by Means of Parahydrogen-Induced Polarization. <i>Journal of Physical Chemistry C</i> , 2011, 115, 13386-13391.	3.1	66
105	New Perspectives for Parahydrogen-Induced Polarization in Liquid Phase Heterogeneous Hydrogenation: An Aqueous Phase and ALTADENA Study. <i>ChemPhysChem</i> , 2010, 11, 3086-3088.	2.1	43
106	Microfluidic Gas-Flow Imaging Utilizing Parahydrogen-Induced Polarization and Remote-Detection NMR. <i>Angewandte Chemie - International Edition</i> , 2010, 49, 8363-8366.	13.8	60
107	Parahydrogen-Induced Polarization in Heterogeneous Hydrogenations Catalyzed by an Immobilized Au(III) Complex. <i>Journal of Physical Chemistry Letters</i> , 2010, 1, 1705-1708.	4.6	74
108	Parahydrogen-induced polarization in alkyne hydrogenation catalyzed by Pd nanoparticles embedded in a supported ionic liquid phase. <i>Chemical Communications</i> , 2010, 46, 5764.	4.1	36

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109	Observation of Parahydrogen-Induced Polarization in Heterogeneous Hydrogenation on Supported Metal Catalysts. <i>Angewandte Chemie - International Edition</i> , 2008, 47, 1492-1495.	13.8	179
110	NMR Imaging of Catalytic Hydrogenation in Microreactors with the Use of para-Hydrogen. <i>Science</i> , 2008, 319, 442-445.	12.6	213
111	Multinuclear magnetic resonance imaging as a multifunctional tool for the investigation of the properties of materials, transport processes and catalytic reactions. <i>Russian Chemical Reviews</i> , 2007, 76, 583-598.	6.5	11
112	para-Hydrogen-Induced Polarization in Heterogeneous Hydrogenation Reactions. <i>Journal of the American Chemical Society</i> , 2007, 129, 5580-5586.	13.7	160
113	Para-Hydrogen-Enhanced Hyperpolarized Gas-Phase Magnetic Resonance Imaging. <i>Angewandte Chemie - International Edition</i> , 2007, 46, 4064-4068.	13.8	83
114	NMR microimaging of fluid flow in model string-type reactors. <i>Chemical Engineering Science</i> , 2007, 62, 4459-4468.	3.8	6
115	Parahydrogen-Induced Polarization in Heterogeneous Catalytic Hydrogenations. , 0, , 99-115.		4