Kirill V Kovtunov

List of Publications by Year
in descending order

115	4,692	94433	114465
papers	citations	37 h-index	63 g-index

126	126	126	2185
all docs	docs citations	times ranked	citing authors

#	Article	IF	Citations
1	Parahydrogenâ€Based Hyperpolarization for Biomedicine. Angewandte Chemie - International Edition, 2018, 57, 11140-11162.	13.8	251
2	NMR Imaging of Catalytic Hydrogenation in Microreactors with the Use of para-Hydrogen. Science, 2008, 319, 442-445.	12.6	213
3	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
4	Hyperpolarized NMR Spectroscopy: dâ€DNP, PHIP, and SABRE Techniques. Chemistry - an Asian Journal, 2018, 13, 1857-1871.	3.3	180
5	Observation of Parahydrogenâ€Induced Polarization in Heterogeneous Hydrogenation on Supported Metal Catalysts. Angewandte Chemie - International Edition, 2008, 47, 1492-1495.	13.8	179
6	para-Hydrogen-Induced Polarization in Heterogeneous Hydrogenation Reactions. Journal of the American Chemical Society, 2007, 129, 5580-5586.	13.7	160
7	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
8	NMR Hyperpolarization Techniques of Gases. Chemistry - A European Journal, 2017, 23, 725-751.	3.3	140
9	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
10	Câ€“H Activation on Co,O Sites: Isolated Surface Sites versus Molecular Analogs. Journal of the American Chemical Society, 2016, 138, 14987-14997.	13.7	117
11	Parahydrogen-Induced Polarization in Heterogeneous Catalytic Processes. Topics in Current Chemistry, 2012, 338, 123-180.	4.0	100
12	A simple analytical model for signal amplification by reversible exchange (SABRE) process. Physical Chemistry Chemical Physics, 2016, 18, 89-93.	2.8	90
13	Para-Hydrogen-Enhanced Hyperpolarized Gas-Phase Magnetic Resonance Imaging. Angewandte Chemie - International Edition, 2007, 46, 4064-4068.	13.8	83
14	Parahydrogen-Induced Polarization in Heterogeneous Hydrogenations Catalyzed by an Immobilized Au(III) Complex. Journal of Physical Chemistry Letters, 2010, 1, 1705-1708.	4.6	74
15	Highâ€Resolution 3D Proton MRI of Hyperpolarized Gas Enabled by Parahydrogen and Rh/TiO₂ Heterogeneous Catalyst. Chemistry - A European Journal, 2014, 20, 11636-11639.	3.3	72
16	Propane-d₆ Heterogeneously Hyperpolarized by Parahydrogen. Journal of Physical Chemistry C, 2014, 118, 28234-28243.	3.1	71
17	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
18	Singleâ€Atom Gold Catalysis in the Context of Developments in Parahydrogenâ€Induced Polarization. Chemistry - A European Journal, 2015, 21, 7012-7015.	3.3	68

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19	Role of Different Active Sites in Heterogeneous Alkene Hydrogenation on Platinum Catalysts Revealed by Means of Parahydrogen-Induced Polarization. Journal of Physical Chemistry C, 2011, 115, 13386-13391.	3.1	66
20	Longâ€Lived Spin States for Lowâ€Field Hyperpolarized Gas MRI. Chemistry - A European Journal, 2014, 20, 14629-14632.	3.3	65
21	Microfluidic Gasâ€Flow Imaging Utilizing Parahydrogenâ€Induced Polarization and Remoteâ€Detection NMR. Angewandte Chemie - International Edition, 2010, 49, 8363-8366.	13.8	60
22	In Situ and Ex Situ Lowâ€Field NMR Spectroscopy and MRI Endowed by SABRE Hyperpolarization. ChemPhysChem, 2014, 15, 4100-4107.	2.1	58
23	Heterogeneous Microtesla SABRE Enhancement of ¹⁵N NMR Signals. Angewandte Chemie - International Edition, 2017, 56, 10433-10437.	13.8	58
24	Heterogeneous addition of H2 to double and triple bonds over supported Pd catalysts: a parahydrogen-induced polarization technique study. Physical Chemistry Chemical Physics, 2012, 14, 11008.	2.8	56
25	Strong Metalâ€“Support Interactions for Palladium Supported on TiO₂ Catalysts in the Heterogeneous Hydrogenation with Parahydrogen. ChemCatChem, 2015, 7, 2581-2584.	3.7	54
26	Parawasserstoffâ€basierte Hyperpolarisierung fÃ¼r die Biomedizin. Angewandte Chemie, 2018, 130, 11310-11333.	2.0	54
27	Xâ€“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
28	Parahydrogen-induced polarization (PHIP) in heterogeneous hydrogenation over bulk metals and metal oxides. Chemical Communications, 2014, 50, 875-878.	4.1	50
29	Selective Singleâ€Site Pdâ€“In Hydrogenation Catalyst for Production of Enhanced Magnetic Resonance Signals using Parahydrogen. Chemistry - A European Journal, 2018, 24, 2547-2553.	3.3	50
30	Hyperpolarizing Concentrated Metronidazole ¹⁵NO₂ Group over Six Chemical Bonds with More than 15â€‰% Polarization and a 20â€…Minute Lifetime. Chemistry - A European Journal, 2019, 25, 8829-8836.	3.3	48
31	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
32	New Perspectives for Parahydrogenâ€Induced Polarization in Liquid Phase Heterogeneous Hydrogenation: An Aqueous Phase and ALTADENA Study. ChemPhysChem, 2010, 11, 3086-3088.	2.1	43
33	Nuclear Spin Isomers of Ethylene: Enrichment by Chemical Synthesis and Application for NMR Signal Enhancement. Angewandte Chemie - International Edition, 2013, 52, 13251-13255.	13.8	42
34	A Mechanistic Study of Thiophene Hydrodesulfurization by the Parahydrogenâ€Induced Polarization Technique. ChemCatChem, 2015, 7, 3508-3512.	3.7	42
35	Production of Catalyst-Free Hyperpolarised Ethanol Aqueous Solution via Heterogeneous Hydrogenation with Parahydrogen. Scientific Reports, 2015, 5, 13930.	3.3	41
36	Aqueous, Heterogeneous para-Hydrogen-Induced ¹⁵N Polarization. Journal of Physical Chemistry C, 2017, 121, 15304-15309.	3.1	40

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37	High-Resolution Low-Field Molecular Magnetic Resonance Imaging of Hyperpolarized Liquids. Analytical Chemistry, 2014, 86, 9042-9049.	6.5	39
38	Toward Continuous Production of Catalyst-Free Hyperpolarized Fluids Based on Biphasic and Heterogeneous Hydrogenations with Parahydrogen. Journal of Physical Chemistry C, 2013, 117, 22887-22893.	3.1	38
39	Parahydrogen-induced polarization in alkyne hydrogenation catalyzed by Pd nanoparticles embedded in a supported ionic liquid phase. Chemical Communications, 2010, 46, 5764.	4.1	36
40	Selective Hydrogenation of 1,3â€Butadiene and 1â€Butyne over a Rh/Chitosan Catalyst Investigated by using Parahydrogenâ€Induced Polarization. ChemCatChem, 2012, 4, 2031-2035.	3.7	36
41	Evaluation of the Mechanism of Heterogeneous Hydrogenation of Î±,Î²-Unsaturated Carbonyl Compounds via Pairwise Hydrogen Addition. ACS Catalysis, 2014, 4, 2022-2028.	11.2	36
42	Production of Pure Aqueous ¹³Câ€Hyperpolarized Acetate by Heterogeneous Parahydrogenâ€Induced Polarization. Chemistry - A European Journal, 2016, 22, 16446-16449.	3.3	36
43	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
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	Synthesis of Unsaturated Precursors for Parahydrogen-Induced Polarization and Molecular Imaging of 1-¹³C-Acetates and 1-¹³C-Pyruvates via Side Arm Hydrogenation. ACS Omega, 2018, 3, 6673-6682.	3.5	33
46	¹⁵N MRI of SLICâ€SABRE Hyperpolarized ¹⁵Nâ€Labelled Pyridine and Nicotinamide. Chemistry - A European Journal, 2019, 25, 8465-8470.	3.3	33
47	¹⁵N NMR Hyperpolarization of Radiosensitizing Antibiotic Nimorazole by Reversible Parahydrogen Exchange in Microtesla Magnetic Fields. Angewandte Chemie - International Edition, 2021, 60, 2406-2413.	13.8	33
48	Quantifying the effects of quadrupolar sinksvia¹⁵N relaxation dynamics in metronidazoles hyperpolarizedviaSABRE-SHEATH. Chemical Communications, 2020, 56, 9098-9101.	4.1	32
49	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
50	Toward production of pure ¹³C hyperpolarized metabolites using heterogeneous parahydrogen-induced polarization of ethyl[1-¹³C]acetate. RSC Advances, 2016, 6, 69728-69732.	3.6	28
51	Pairwise hydrogen addition in the selective semihydrogenation of alkynes on silica-supported Cu catalysts. Chemical Science, 2017, 8, 2426-2430.	7.4	28
52	Parahydrogen-Induced Polarization of 1-¹³C-Acetates and 1-¹³C-Pyruvates Using Sidearm Hydrogenation of Vinyl, Allyl, and Propargyl Esters. Journal of Physical Chemistry C, 2019, 123, 12827-12840.	3.1	28
53	Pulse-Programmable Magnetic Field Sweeping of Parahydrogen-Induced Polarization by Side Arm Hydrogenation. Analytical Chemistry, 2020, 92, 1340-1345.	6.5	28
54	Demonstration of Heterogeneous Parahydrogen Induced Polarization Using Hyperpolarized Agent Migration from Dissolved Rh(I) Complex to Gas Phase. Analytical Chemistry, 2014, 86, 6192-6196.	6.5	27

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55	Robust Imidazoleâ€¹⁵N₂ Synthesis for Highâ€Resolution Lowâ€Field (0.05 T) ¹⁵NÂHyperpolarized NMR Spectroscopy. ChemistrySelect, 2017, 2, 4478-4483.	1.5	27
56	Heterogeneous Microtesla SABRE Enhancement of ¹⁵N NMR Signals. Angewandte Chemie, 2017, 129, 10569-10573.	2.0	27
57	Singleâ€Site Heterogeneous Catalysts: From Synthesis to NMR Signal Enhancement. Chemistry - A European Journal, 2019, 25, 1420-1431.	3.3	27
58	Parahydrogenâ€Induced Hyperpolarization of Gases. Angewandte Chemie - International Edition, 2020, 59, 17788-17797.	13.8	27
59	Chemical Reaction Monitoring using Zeroâ€Field Nuclear Magnetic Resonance Enables Study of Heterogeneous Samples in Metal Containers. Angewandte Chemie - International Edition, 2020, 59, 17026-17032.	13.8	26
60	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
61	Catalysis and Nuclear Magnetic Resonance Signal Enhancement with Parahydrogen. Topics in Catalysis, 2016, 59, 1686-1699.	2.8	24
62	¹⁹F Hyperpolarization of ¹⁵N-3-¹⁹F-Pyridine via Signal Amplification by Reversible Exchange. Journal of Physical Chemistry C, 2018, 122, 23002-23010.	3.1	23
63	Quasi-Resonance Fluorine-19 Signal Amplification by Reversible Exchange. Journal of Physical Chemistry Letters, 2019, 10, 4229-4236.	4.6	23
64	Clinical-Scale Batch-Mode Production of Hyperpolarized Propane Gas for MRI. Analytical Chemistry, 2019, 91, 4741-4746.	6.5	23
65	NMR SLIC Sensing of Hydrogenation Reactions Using Parahydrogen in Low Magnetic Fields. Journal of Physical Chemistry C, 2016, 120, 29098-29106.	3.1	21
66	Gas Phase UTE MRI of Propane and Propene. Tomography, 2016, 2, 49-55.	1.8	21
67	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
68	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
69	Mechanistic Insight into the Heterogeneous Hydrogenation of Furan Derivatives with the use of Parahydrogen. ChemCatChem, 2018, 10, 1178-1183.	3.7	20
70	Low-Cost High-Pressure Clinical-Scale 50% Parahydrogen Generator Using Liquid Nitrogen at 77 K. Analytical Chemistry, 2021, 93, 8476-8483.	6.5	20
71	Heterogeneous Parahydrogen Pairwise Addition to Cyclopropane. ChemPhysChem, 2018, 19, 2621-2626.	2.1	19
72	PHIP hyperpolarized [1-13C]pyruvate and [1-13C]acetate esters via PH-INEPT polarization transfer monitored by 13C NMR and MRI. Scientific Reports, 2021, 11, 5646.	3.3	19

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73	Extending the Lifetime of Hyperpolarized Propane Gas through Reversible Dissolution. Journal of Physical Chemistry C, 2017, 121, 4481-4487.	3.1	18
74	15 N Hyperpolarization of Dalfampridine at Natural Abundance for Magnetic Resonance Imaging. Chemistry - A European Journal, 2019, 25, 12694-12697.	3.3	18
75	Relaxation Dynamics of Nuclear Long-Lived Spin States in Propane and Propane-d6 Hyperpolarized by Parahydrogen. Journal of Physical Chemistry C, 2019, 123, 11734-11744.	3.1	18
76	Deciphering the Nature of Ru Sites in Reductively Exsolved Oxides with Electronic and Geometric Metalâ€“Support Interactions. Journal of Physical Chemistry C, 2020, 124, 25299-25307.	3.1	18
77	Mechanistic in situ investigation of heterogeneous hydrogenation over Rh/TiO₂ catalysts: selectivity, pairwise route and catalyst nature. Faraday Discussions, 2021, 229, 161-175.	3.2	18
78	Kinetic Study of Propylene Hydrogenation over Pt/Al2O3 by Parahydrogen-Induced Polarization. Applied Magnetic Resonance, 2013, 44, 279-288.	1.2	17
79	Bimetallic Pdâ€“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
80	Catalytic hydrogenation with parahydrogen: a bridge from homogeneous to heterogeneous catalysis. Pure and Applied Chemistry, 2020, 92, 1029-1046.	1.9	17
81	Spatially resolved NMR spectroscopy of heterogeneous gas phase hydrogenation of 1,3-butadiene with parahydrogen. Catalysis Science and Technology, 2020, 10, 99-104.	4.1	16
82	Low-valent homobimetallic Rh complexes: influence of ligands on the structure and the intramolecular reactivity of Rhâ€“H intermediates. Chemical Science, 2019, 10, 7937-7945.	7.4	15
83	Pairwise Parahydrogen Addition Over Molybdenum Carbide Catalysts. Topics in Catalysis, 2020, 63, 2-11.	2.8	14
84	Efficient Batchâ€Mode Parahydrogenâ€Induced Polarization of Propane. ChemPhysChem, 2016, 17, 3395-3398.	2.1	13
85	Effects of Deuteration of ¹³C-Enriched Phospholactate on Efficiency of Parahydrogen-Induced Polarization by Magnetic Field Cycling. Journal of Physical Chemistry C, 2018, 122, 24740-24749.	3.1	12
86	Heterogeneous hydrogenation of phenylalkynes with parahydrogen: hyperpolarization, reaction selectivity, and kinetics. Physical Chemistry Chemical Physics, 2019, 21, 26477-26482.	2.8	12
87	Heterogeneous Parahydrogenâ€Induced Polarization of Diethyl Ether for Magnetic Resonance Imaging Applications. Chemistry - A European Journal, 2021, 27, 1316-1322.	3.3	12
88	Multinuclear magnetic resonance imaging as a multifunctional tool for the investigation of the properties of materials, transport processes and catalytic reactions. Russian Chemical Reviews, 2007, 76, 583-598.	6.5	11
89	Recent MRI Studies on Heterogeneous Catalysis. Annual Reports on NMR Spectroscopy, 2018, 95, 83-145.	1.5	11
90	In Situ Monitoring of Heterogeneous Catalytic Hydrogenation via ¹²⁹Xe NMR Spectroscopy and Proton MRI. ACS Catalysis, 2020, 10, 1417-1422.	11.2	11

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91	Parahydrogenâ€Induced Polarization of Diethyl Ether Anesthetic. Chemistry - A European Journal, 2020, 26, 13621-13626.	3.3	11
92	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
93	Heterogeneous ¹H and ¹³C Parahydrogenâ€Induced Polarization of Acetate and Pyruvate Esters. ChemPhysChem, 2021, 22, 1389-1396.	2.1	9
94	Evaluation of Activation Energies for Pairwise and Non-Pairwise Hydrogen Addition to Propyne Over Pd/Aluminosilicate Fiberglass Catalyst by Parahydrogen-Induced Polarization (PHIP). Applied Magnetic Resonance, 2014, 45, 1051-1061.	1.2	8
95	Lowâ€Flammable Parahydrogenâ€Polarized MRI Contrast Agents. Chemistry - A European Journal, 2021, 27, 2774-2781.	3.3	8
96	Synthesis and 15 N NMR Signal Amplification by Reversible Exchange of [15 N]Dalfampridine at Microtesla Magnetic Fields. ChemPhysChem, 2021, 22, 960-967.	2.1	8
97	Robust In Situ Magnetic Resonance Imaging of Heterogeneous Catalytic Hydrogenation with and without Hyperpolarization. ChemCatChem, 2019, 11, 969-973.	3.7	7
98	A versatile synthetic route to the preparation of ¹⁵N heterocycles. Journal of Labelled Compounds and Radiopharmaceuticals, 2019, 62, 892-902.	1.0	7
99	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
100	NMR microimaging of fluid flow in model string-type reactors. Chemical Engineering Science, 2007, 62, 4459-4468.	3.8	6
101	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
102	¹⁵N NMR Hyperpolarization of Radiosensitizing Antibiotic Nimorazole by Reversible Parahydrogen Exchange in Microtesla Magnetic Fields. Angewandte Chemie, 2021, 133, 2436-2443.	2.0	6
103	Gas-Phase NMR of Hyperpolarized Propane with 1H-to-13C Polarization Transfer by PH-INEPT. Applied Magnetic Resonance, 2022, 53, 653-669.	1.2	6
104	Mechanisms of Methylenecyclobutane Hydrogenation over Supported Metal Catalysts Studied by Parahydrogenâ€Induced Polarization Technique. ChemPhysChem, 2022, 23, .	2.1	5
105	Parahydrogen-Induced Polarization in Heterogeneous Catalytic Hydrogenations. , 0, , 99-115.		4
106	Magnetic resonance imaging of catalytically relevant processes. Reviews in Chemical Engineering, 2021, 37, 3-29.	4.4	3
107	Frontispiece: NMR Hyperpolarization Techniques of Gases. Chemistry - A European Journal, 2017, 23, .	3.3	2
108	Highâ€Resolution 3D Proton MRI of Hyperpolarized Gas Enabled by Parahydrogen and Rh/TiO₂ Heterogeneous Catalyst. Chemistry - A European Journal, 2014, 20, 11597-11597.	3.3	1

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109	NMR Hyperpolarization Techniques of Gases. Chemistry - A European Journal, 2017, 23, 724-724.	3.3	1
110	Application of parahydrogen for mechanistic investigations of heterogeneous catalytic processes. Russian Chemical Bulletin, 2017, 66, 273-281.	1.5	1
111	Parawasserstoffâ€induzierte Hyperpolarisation von Gasen. Angewandte Chemie, 2020, 132, 17940-17949.	2.0	1
112	Strong Metalâ€“Support Interactions for Palladium Supported on TiO₂ Catalysts in Heterogeneous Hydrogenation with Parahydrogen. ChemCatChem, 2015, 7, 2545-2545.	3.7	0
113	Frontispiece: Selective Singleâ€Site Pdâ^'In Hydrogenation Catalyst for Production of Enhanced Magnetic Resonance Signals using Parahydrogen. Chemistry - A European Journal, 2018, 24, .	3.3	0
114	Frontispiece: Parahydrogenâ€Induced Polarization of Diethyl Ether Anesthetic. Chemistry - A European Journal, 2020, 26, .	3.3	0
115	Chemical Reaction Monitoring using Zeroâ€Field Nuclear Magnetic Resonance Enables Study of Heterogeneous Samples in Metal Containers. Angewandte Chemie, 2020, 132, 17174-17180.	2.0	0