

# Toward the Realization of 2D Borophene Based Gas Sen

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Citation Report

#	ARTICLE	IF	CITATIONS
1	Improvement of gas-adsorption performances of Ag-functionalized monolayer MoS <sub>2</sub> surfaces: A first-principles study. <i>Journal of Applied Physics</i> , 2018, 123, .	1.1	14
2	Borophene's tryst with stability: exploring 2D hydrogen boride as an electrode for rechargeable batteries. <i>Physical Chemistry Chemical Physics</i> , 2018, 20, 22008-22016.	1.3	45
3	Scrupulous Probing of Bifunctional Catalytic Activity of Borophene Monolayer: Mapping Reaction Coordinate with Charge Transfer. <i>ACS Applied Energy Materials</i> , 2018, 1, 3571-3576.	2.5	32
4	Strain controlled electronic and transport anisotropies in two-dimensional borophene sheets. <i>Physical Chemistry Chemical Physics</i> , 2018, 20, 22952-22960.	1.3	53
5	Borophene: a promising adsorbent material with strong ability and capacity for SO <sub>2</sub> adsorption. <i>Applied Physics A: Materials Science and Processing</i> , 2018, 124, 1.	1.1	36
6	Highly-sensitive gas sensor based on two-dimensional material field effect transistor. <i>Nanotechnology</i> , 2018, 29, 435502.	1.3	32
7	Direction and strain controlled anisotropic transport behaviors of 2D GeSe-phosphorene vdW heterojunctions. <i>Nanotechnology</i> , 2019, 30, 445703.	1.3	22
8	A review on recent progress of p-type nickel oxide based gas sensors: Future perspectives. <i>Journal of Alloys and Compounds</i> , 2019, 805, 267-294.	2.8	146
9	Emerging mono-elemental 2D nanomaterials for electrochemical sensing applications: From borophene to bismuthene. <i>TrAC - Trends in Analytical Chemistry</i> , 2019, 121, 115696.	5.8	31
10	Ultra-high-sensitive gas sensors based on doped phosphorene: A first-principles investigation. <i>Applied Surface Science</i> , 2019, 497, 143660.	3.1	35
11	Electronic transport properties of MoS <sub>2</sub> nanoribbons embedded in butadiene solvent. <i>Physical Chemistry Chemical Physics</i> , 2019, 21, 11359-11366.	1.3	11
12	Freestanding Borophene and Its Hybrids. <i>Advanced Materials</i> , 2019, 31, e1900353.	11.1	195
13	Electrical Properties of Two-Dimensional Materials Used in Gas Sensors. <i>Sensors</i> , 2019, 19, 1295.	2.1	81
14	Review of borophene and its potential applications. <i>Frontiers of Physics</i> , 2019, 14, 1.	2.4	201
15	Tuning the electronic transport anisotropy in borophene via oxidation strategy. <i>Science China Technological Sciences</i> , 2019, 62, 799-810.	2.0	14
16	Charge Transport in Borophene: Role of Intrinsic Line Defects. <i>Journal of Physical Chemistry C</i> , 2019, 123, 6270-6275.	1.5	13
17	Electrically-Transduced Chemical Sensors Based on Two-Dimensional Nanomaterials. <i>Chemical Reviews</i> , 2019, 119, 478-598.	23.0	521
18	Recent progress on graphene-analogous 2D nanomaterials: Properties, modeling and applications. <i>Progress in Materials Science</i> , 2019, 100, 99-169.	16.0	235

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19	Enhancing gas adsorption properties of borophene by embedding transition metals. Computational Condensed Matter, 2020, 22, e00436.	0.9	18
20	2D Boron Sheets: Structure, Growth, and Electronic and Thermal Transport Properties. Advanced Functional Materials, 2020, 30, 1904349.	7.8	124
21	The gas sensing performance of borophene/MoS <sub>2</sub> heterostructure. Applied Surface Science, 2020, 504, 144412.	3.1	59
22	Excitonic effects in the optoelectronic properties of graphene-like BC monolayer. Optical Materials, 2020, 110, 110476.	1.7	19
23	Theoretical dissection of superconductivity in two-dimensional honeycomb borophene oxide B <sub>2</sub> O crystal with a high stability. Npj Computational Materials, 2020, 6, .	3.5	47
24	Borophene: New Sensation in Flatland. Advanced Materials, 2020, 32, e2000531.	11.1	118
25	Improved gas adsorption on functionalized aluminene surface: A first-principles study. Applied Surface Science, 2020, 531, 147364.	3.1	20
26	Design, characterization, and application of elemental 2D materials for electrochemical energy storage, sensing, and catalysis. Materials Advances, 2020, 1, 2562-2591.	2.6	21
27	Computational Study of Borophene with Line Defects as Sensors for Nitrogen-Containing Gas Molecules. ACS Applied Nano Materials, 2020, 3, 9961-9968.	2.4	24
28	Borophene: Current Status, Challenges and Opportunities. ChemPlusChem, 2020, 85, 2186-2196.	1.3	63
29	Structural, electronic, and energetic investigations of acrolein adsorption on B <sub>36</sub> borophene nanosheet: a dispersion-corrected DFT insight. Journal of Molecular Modeling, 2020, 26, 128.	0.8	21
30	First-Principles Investigation of the 1T-HfTe <sub>2</sub> Nanosheet for Selective Gas Sensing. ACS Applied Nano Materials, 2020, 3, 5160-5171.	2.4	27
31	Boron nanostructures obtained via ultrasonic irradiation for high performance chemiresistive methane sensors. Nanoscale Advances, 2020, 2, 1837-1842.	2.2	8
32	Highly Effective Work Function Reduction of Borophene via Caesium Decoration: A First-Principles Investigation. Advanced Theory and Simulations, 2020, 3, 1900249.	1.3	8
33	Embedded carbon nanowire in black phosphorene and C-doping: the rule to control electronic properties. Nanotechnology, 2020, 31, 275201.	1.3	7
34	Advances in ultrathin borophene materials. Chemical Engineering Journal, 2020, 401, 126109.	6.6	42
35	Printed gas sensors. Chemical Society Reviews, 2020, 49, 1756-1789.	18.7	216
36	Theoretical study of a p-n homojunction SiGe field-effect transistor via covalent functionalization. RSC Advances, 2020, 10, 7682-7690.	1.7	2

#	ARTICLE	IF	CITATIONS
37	Exploring two-dimensional M <sub>2</sub> NS <sub>2</sub> (M = Ti, V) MXenes based gas sensors for air pollutants. <i>Applied Materials Today</i> , 2020, 19, 100574.	2.3	44
38	Adsorption of adenine molecule on borophene nanosheets: A density functional theory study. <i>Physica E: Low-Dimensional Systems and Nanostructures</i> , 2020, 119, 114026.		
39	Novel green phosphorene as a superior chemical gas sensing material. <i>Journal of Hazardous Materials</i> , 2021, 401, 123340.	6.5	71
40	Borophene-based biomedical applications: Status and future challenges. <i>Coordination Chemistry Reviews</i> , 2021, 427, 213549.	9.5	47
41	Electron transport along boron nanotubes rolled from $\sqrt{2}$ -borophene: A first-principles study. <i>Physica E: Low-Dimensional Systems and Nanostructures</i> , 2021, 126, 114457.	1.3	1
42	Application of two-dimensional materials as anodes for rechargeable metal-ion batteries: A comprehensive perspective from density functional theory simulations. <i>Energy Storage Materials</i> , 2021, 35, 203-282.	9.5	84
43	Detection of nucleobases on borophene nanosheet: A DFT investigation. <i>Bioelectrochemistry</i> , 2021, 138, 107721.	2.4	9
44	Asymmetric transport in boron intratube p-i-n junction via gas storage for diode applications. <i>Applied Surface Science</i> , 2021, 537, 148081.	3.1	1
45	Highly anisotropic gas sensing of atom-thin borophene: a first-principles study. <i>Journal of Materials Chemistry C</i> , 2021, 9, 1069-1076.	2.7	28
46	Fabrication of a room-temperature NO <sub>2</sub> gas sensor using morphology controlled CVD-grown tellurium nanostructures. <i>Sensors and Actuators B: Chemical</i> , 2021, 333, 128891.	4.0	21
47	An ultra-sensitive gas sensor based on a two-dimensional manganese porphyrin monolayer. <i>Physical Chemistry Chemical Physics</i> , 2021, 23, 11852-11862.	1.3	13
48	Ultrasensitive humidity sensing and the multifunctional applications of borophene-MoS <sub>2</sub> heterostructures. <i>Journal of Materials Chemistry A</i> , 2021, 9, 13100-13108.	5.2	55
49	Adsorption of toxic gases on borophene: surface deformation links to chemisorptions. <i>RSC Advances</i> , 2021, 11, 18279-18287.	1.7	21
50	Elimination of interlayer Schottky barrier in borophene/C <sub>4</sub> N <sub>4</sub> vdW heterojunctions via Li-ion adsorption for tunneling photodiodes. <i>Journal of Materials Chemistry C</i> , 2021, 9, 4206-4216.	2.7	5
51	Theoretical investigation of the interaction between the metal phthalocyanine [MPC] <sub>a</sub> (M = Sc, Ti, and) Tj ETQq0 0 0 r gBT /Overlock 10 T	0.5	2
52	Additive manufacturing and applications of nanomaterial-based sensors. <i>Materials Today</i> , 2021, 48, 135-154.	8.3	46
53	First-Principles Calculations of SiBi Nanosheets as Sensors for Oxygen-Containing Gases. <i>ACS Applied Nano Materials</i> , 2021, 4, 2440-2451.	2.4	19
54	Progress, Challenges, and Opportunities in the Synthesis, Characterization, and Application of Metal-Boride-Derived Two-Dimensional Nanostructures. , 2021, 3, 535-556.		49

#	ARTICLE	IF	CITATIONS
55	DFT exploration of sensor performances of two-dimensional WO <sub>3</sub> to ten small gases in terms of work function and band gap changes and I-V responses. Applied Surface Science, 2021, 546, 149104.	3.1	89
56	Recent Development of Gas Sensing Platforms Based on 2D Atomic Crystals. Research, 2021, 2021, 9863038.	2.8	29
57	The Emergence and Evolution of Borophene. Advanced Science, 2021, 8, 2001801.	5.6	98
58	Adsorption of gas molecules on 2D Na <sub>3</sub> Bi monolayer: A first-principles study. Physics Letters, Section A: General, Atomic and Solid State Physics, 2021, 399, 127280.	0.9	1
59	Kinetic 2D Crystals via Topochemical Approach. Advanced Materials, 2021, 33, e2006043.	11.1	11
60	Review of Recent Material Advances and Their Mechanistic Approaches for Room Temperature Chemiresistive Gas Sensors. Journal of the Electrochemical Society, 2021, 168, 057521.	1.3	34
61	Computational study of borophene/boron nitride (B/BN) interface as a promising gas sensor for industrial affiliated gasses. Physica E: Low-Dimensional Systems and Nanostructures, 2021, 130, 114692.	1.3	20
62	Using Density Functional Theory to Correlate Charge Transport Properties with Gas Sensing by Organic Nanowires. ACS Applied Nano Materials, 2021, 4, 5972-5980.	2.4	5
63	Substituted 2D Janus WSSe monolayers as efficient nanosensor toward toxic gases. Journal of Applied Physics, 2021, 130, .	1.1	16
64	A comprehensive first-principle study of borophene-based nano gas sensor with gold electrodes. Frontiers of Physics, 2022, 17, 1.	2.4	7
65	Borophene synthesis beyond the single-atomic-layer limit. Nature Materials, 2022, 21, 35-40.	13.3	137
66	vdW-DF-ahcx: a range-separated van der Waals density functional hybrid. Journal of Physics Condensed Matter, 2021, 34, .	0.7	7
67	Study of Adsorption of H <sub>2</sub> , CO and NO Gas Molecules on Molybdenum Sulfide and Tungsten Sulfide Monolayers from First-Principles Calculations. Surface Science, 2021, 714, 121910.	0.8	6
68	Strain-engineering of anisotropic behavior in the electrical and optical properties of graphene-like borophene hydride, a DFT calculation. Computational Materials Science, 2021, 200, 110778.	1.4	9
69	The elemental 2D materials beyond graphene potentially used as hazardous gas sensors for environmental protection. Journal of Hazardous Materials, 2022, 423, 127148.	6.5	27
70	Borophene-graphene heterostructure: Preparation and ultrasensitive humidity sensing. Nano Research, 2021, 14, 2337.	5.8	60
71	A review of the interfacial properties of 2-D materials for energy storage and sensor applications. Chinese Journal of Physics, 2020, 66, 246-257.	2.0	28
72	Organic Gas Sensing Performance of the Borophene van der Waals Heterostructure. Journal of Physical Chemistry C, 2021, 125, 427-435.	1.5	30

#	ARTICLE	IF	CITATIONS
73	Carbon-phosphide monolayer with high carrier mobility and perceptible $I_{ON}/I_{OFF}$ response for superior gas sensing. <i>New Journal of Chemistry</i> , 2020, 44, 3777-3785.	1.4	23
74	Unraveling the effect of the defect and adsorbate on the magnetic properties of $\sqrt{3} \times \sqrt{3}$ borophene nanoribbons: an in-silico study. <i>Physica Scripta</i> , 2021, 96, 015812.	1.2	4
75	Adsorption of hydrogen molecule on alkali metal-decorated hydrogen boride nanotubes: A DFT study. <i>International Journal of Hydrogen Energy</i> , 2021, 46, 39273-39283.	3.8	13
76	Emerging 2D-Nanostructured materials for electrochemical and sensing Application-A review. <i>International Journal of Hydrogen Energy</i> , 2022, 47, 1371-1389.	3.8	34
77	Borophene gas sensor. <i>Nano Research</i> , 2022, 15, 2537-2544.	5.8	53
78	Super-planckian thermal radiation in borophene sheets. <i>International Journal of Heat and Mass Transfer</i> , 2022, 183, 122140.	2.5	26
79	Chemistry, Functionalization, and Applications of Recent Monoelemental Two-Dimensional Materials and Their Heterostructures. <i>Chemical Reviews</i> , 2022, 122, 1127-1207.	23.0	103
80	Inorganic gas sensing performance of $\sqrt{3}$ -borophene and the van der Waals heterostructure. <i>Applied Surface Science</i> , 2022, 581, 151906.	3.1	18
81	C-doping Anisotropy Effects on Borophene Electronic Transport. <i>Journal of Physics Condensed Matter</i> , 2021, , .	0.7	1
82	Gas sensing behavior and adsorption mechanism on $\sqrt{3}$ borophene surface. <i>Chemical Engineering Journal</i> , 2022, 431, 133947.	6.6	13
83	Prediction of superconductivity in bilayer borophenes. <i>RSC Advances</i> , 2021, 11, 40220-40227.	1.7	9
84	Micrometre-scale single-crystalline borophene on a square-lattice Cu(100) surface. <i>Nature Chemistry</i> , 2022, 14, 377-383.	6.6	28
85	Borophene as a rising star in materials chemistry: synthesis, properties and applications in analytical science and energy devices. <i>New Journal of Chemistry</i> , 2022, 46, 4514-4533.	1.4	15
86	Two-dimensional chromium phosphorus monolayer based gas sensors to detect NO <sub>x</sub> : A first-principles study. <i>Results in Physics</i> , 2022, 32, 105100.	2.0	10
87	Borophene as an emerging 2D flatland for biomedical applications: current challenges and future prospects. <i>Journal of Materials Chemistry B</i> , 2022, 10, 1146-1175.	2.9	31
88	2D boron nanosheet architectonics: opening new territories by smart functionalization. <i>Journal of Materials Chemistry A</i> , 2022, 10, 2736-2750.	5.2	12
89	Synthesis and Characterization of Graphene oxide for Gas Sensing Applications. <i>IOP Conference Series: Materials Science and Engineering</i> , 2022, 1219, 012028.	0.3	0
90	Monolayer Sc <sub>2</sub> CF <sub>2</sub> as a Potential Selective and Sensitive NO <sub>2</sub> Sensor: Insight from First-Principles Calculations. <i>ACS Omega</i> , 2022, 7, 9267-9275.	1.6	3

#	ARTICLE	IF	CITATIONS
91	Review "Towards 5th Generation AI and IoT Driven Sustainable Intelligent Sensors Based on 2D MXenes and Borophene. , 2022, 1, 013601.		238
92	Bilayer borophene synthesized on Ag(111) film: Physical mechanism and applications for optical sensor and thermoelectric devices. Materials Today Physics, 2022, 23, 100652.	2.9	15
93	Study of the structural stability and electronic properties of the C-doped boron nanomaterials. Solid State Communications, 2022, 350, 114773.	0.9	0
94	A DFT study of silver decorated bismuthene for gas sensing properties and effect of humidity. Materials Science in Semiconductor Processing, 2022, 145, 106635.	1.9	14
95	Tuning the electronic transport properties in few-layers GeP $\times 3$ intercalated by Cr-atoms. Physica E: Low-Dimensional Systems and Nanostructures, 2022, 141, 115242.	1.3	0
96	Exploring the emerging applications of the advanced 2-dimensional material borophene with its unique properties. RSC Advances, 2022, 12, 12166-12192.	1.7	19
97	Design of mono-elemental based two dimensional nanoarchitectures for therapeutic, chemical sensing and in vitro diagnosis applications: A case of borophene. Journal of Molecular Structure, 2022, 1265, 133387.	1.8	5
98	2D materials: increscent quantum flatland with immense potential for applications. Nano Convergence, 2022, 9, .	6.3	29
99	First-Principles Calculations of Two-Dimensional Monolayer PdSe $\times 2$ for Selective Sensing of Nitrogen-Containing Gases. ACS Applied Nano Materials, 2022, 5, 11519-11528.	2.4	9
100	Optical spectra of bilayer borophene synthesized on Ag(1 1 1) film. Spectrochimica Acta - Part A: Molecular and Biomolecular Spectroscopy, 2022, 282, 121711.	2.0	8
101	Sensing applications of GeBi nanosheet for environmentally toxic/non-toxic gases: Insights from density functional theory calculations. Applied Surface Science, 2022, 606, 154741.	3.1	5
102	Volatile organic compound detection performance of Borophene and PANI: Borophene nanocomposite-based sensors. Journal of Materials Science: Materials in Electronics, 2022, 33, 24173-24181.	1.1	8
103	Effect of defects on a nano-borophene structure consisting of mixed spins S $\times 2$ and $\times 5/2$ : Monte Carlo simulations. Indian Journal of Physics, 2023, 97, 767-777.	0.9	11
104	Tuning Band Gaps in Twisted Bilayer Borophene. Journal of Physical Chemistry C, 2022, 126, 17769-17776.	1.5	4
105	Stability of and conduction in single-walled $\times 2$ nanotubes. Physical Review Materials, 2022, 6, .	0.9	0
106	Bulk structure of Si $\times 2$ BN predicted by computational approaches. Diamond and Related Materials, 2022, , 109530.	1.8	1
107	Work Function Modification of Borophene by Barium Decoration Towards Room Temperature NO $\times 2$ Gas Sensor. , 2022, , .		1
108	Theoretical prediction of two-dimensional BC $\times 2$ X (X = N, P, As) monolayers: ab initio investigations. Scientific Reports, 2022, 12, .	1.6	40

#	ARTICLE	IF	CITATIONS
109	Borophene-based materials for energy, sensors and information storage applications. , 2023, 2, e9120051.		42
110	Density functional theory study on sensing properties of $g\text{-C}_3\text{N}_4$ sheet to atmospheric gasses: Role of zigzag and armchair edges. Journal of the Chinese Chemical Society, 0, , .	0.8	2
111	Pd nanoparticles-decorated borophene nanosheets for intrinsic polarization-induced visible light photocatalysis. Catalysis Science and Technology, 2023, 13, 1558-1570.	2.1	6
112	Pyridinic Dominance N-Doped Graphene: A Potential Material for $\text{SO}_2$ Gas Detection. Journal of Physical Chemistry A, 2023, 127, 1112-1123.	1.1	5
113	Defect-Engineering of 2D Dichalcogenide $\text{VSe}_2$ to Enhance Ammonia Sensing: Acumens from DFT Calculations. Biosensors, 2023, 13, 257.	2.3	6
114	$\text{NO}_2$ Physical-to-Chemical Adsorption Transition on Janus $\text{WSSe}$ Monolayers Realized by Defect Introduction. Molecules, 2023, 28, 1644.	1.7	9
115	Highly efficient, remarkable sensor activity and energy storage properties of MXenes and borophene nanomaterials. Progress in Solid State Chemistry, 2023, 70, 100392.	3.9	5
116	Prediction of gas adsorption on $\text{g-C}_3\text{N}_4$ borophene: A density functional theory study. Solid State Communications. 2023, 368, 115174.	0.9	1
117	A Review on Borophene: A Potential Gas-Capture Material. Journal of Electronic Materials, 2023, 52, 4434-4454.	1.0	2