

# Partha Bhattacharyya

## List of Publications by Year in descending order

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90  
papers

2,477  
citations

218677

26  
h-index

214800

47  
g-index

90  
all docs

90  
docs citations

90  
times ranked

2621  
citing authors

#	ARTICLE	IF	CITATIONS
1	Recent developments on graphene and graphene oxide based solid state gas sensors. Sensors and Actuators B: Chemical, 2012, 173, 1-21.	7.8	631
2	Performance Analysis of a Low-Power High-Speed Hybrid 1-bit Full Adder Circuit. IEEE Transactions on Very Large Scale Integration (VLSI) Systems, 2015, 23, 2001-2008.	3.1	196
3	Room temperature alcohol sensing by oxygen vacancy controlled TiO <sub>2</sub> nanotube array. Applied Physics Letters, 2014, 105, .	3.3	74
4	Hybrid 3D structures of ZnO nanoflowers and PdO nanoparticles as a highly selective methanol sensor. Analyst, The, 2016, 141, 2977-2989.	3.5	71
5	Stoichiometry, Length, and Wall Thickness Optimization of TiO <sub>2</sub> Nanotube Array for Efficient Alcohol Sensing. ACS Applied Materials & Interfaces, 2015, 7, 9336-9348.	8.0	69
6	Alcohol sensing performance of ZnO hexagonal nanotubes at low temperatures: A qualitative understanding. Sensors and Actuators B: Chemical, 2016, 228, 373-386.	7.8	69
7	Highly Efficient Room-Temperature Gas Sensor Based on TiO <sub>2</sub> Nanotube-Reduced Graphene-Oxide Hybrid Device. IEEE Electron Device Letters, 2016, 37, 656-659.	3.9	66
8	High speed ASIC design of complex multiplier using Vedic Mathematics. , 2011, , .		62
9	Highly Selective Low-Temperature Acetone Sensor Based on Hierarchical 3-D TiO <sub>2</sub> Nanoflowers. IEEE Sensors Journal, 2016, 16, 3488-3495.	4.7	56
10	Low temperature acetone detection by p-type nano-titania thin film: Equivalent circuit model and sensing mechanism. Solid-State Electronics, 2014, 99, 84-92.	1.4	55
11	Repeatability and Stability of Room-Temperature Acetone Sensor Based on $\text{TiO}_2$ Nanotubes: Influence of Stoichiometry Variation. IEEE Transactions on Device and Materials Reliability, 2014, 14, 961-967.	2.0	49
12	Tailoring of the Gas Sensing Performance of TiO <sub>2</sub> Nanotubes by 1-D Vertical Electron Transport Technique. IEEE Transactions on Electron Devices, 2014, 61, 3483-3489.	3.0	48
13	Highly Repeatable Low-ppm Ethanol Sensing Characteristics of p-TiO <sub>2</sub> -Based Resistive Devices. IEEE Sensors Journal, 2015, 15, 408-416.	4.7	46
14	Development of an ethanol sensor based on CBD grown ZnO nanorods. Solid-State Electronics, 2013, 87, 43-50.	1.4	44
15	Operating Temperature, Repeatability, and Selectivity of TiO <sub>2</sub> Nanotube-Based Acetone Sensor: Influence of Pd and Ni Nanoparticle Modifications. IEEE Transactions on Device and Materials Reliability, 2015, 15, 376-383.	2.0	44
16	High Dynamic Range Methanol Sensor Based on Aligned ZnO Nanorods. IEEE Sensors Journal, 2013, 13, 1669-1676.	4.7	43
17	Selectivity Tuning of Graphene Oxide Based Reliable Gas Sensor Devices by Tailoring the Oxygen Functional Groups: A DFT Study Based Approach. IEEE Transactions on Device and Materials Reliability, 2017, 17, 738-745.	2.0	43
18	A highly sensitive methane sensor with nickel alloy microheater on micromachined Si substrate. Solid-State Electronics, 2012, 76, 84-90.	1.4	40

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19	An efficient BTX sensor based on ZnO nanoflowers grown by CBD method. Solid-State Electronics, 2015, 106, 18-26.	1.4	39
20	A highly sensitive BTX sensor based on electrochemically derived wall connected TiO <sub>2</sub> nanotubes. Applied Surface Science, 2015, 354, 353-361.	6.1	38
21	Formation Mechanism of Anodically Grown Free-Standing TiO <sub>2</sub> Nanotube Array Under the Influence of Mixed Electrolytes. Science of Advanced Materials, 2014, 6, 714-719.	0.7	37
22	Ti/TiO <sub>2</sub> Nanotube Array/Ti Capacitive Device for Non-polar Aromatic Hydrocarbon Detection. IEEE Transactions on Device and Materials Reliability, 2016, 16, 235-242.	2.0	35
23	Deposition of nanocrystalline ZnO thin films on p-Si by novel galvanic method and application of the heterojunction as methane sensor. Journal of Materials Science: Materials in Electronics, 2007, 18, 823-829.	2.2	33
24	Highly stable low temperature alcohol sensor based on hydrothermally grown tetragonal titania nanorods. RSC Advances, 2015, 5, 82159-82168.	3.6	33
25	Low Temperature Methanol Sensing by p-Type Nano-titania: Correlation with Defects States and Schottky Barrier Model. IEEE Nanotechnology Magazine, 2015, 14, 187-195.	2.0	28
26	A Comparative Study on Performance Improvement of ZnO Nanotubes Based Alcohol Sensor Devices by Pd and rGO Hybridization. IEEE Transactions on Electron Devices, 2018, 65, 3528-3534.	3.0	27
27	Vertical Mode Gas Sensing Performance of TiO <sub>2</sub> Nanotube Array by Tuning of Surface Area and Carrier Transport Length. IEEE Sensors Journal, 2015, 15, 5919-5926.	4.7	26
28	Ultrathin Films of TiO <sub>2</sub> Nanoparticles at Interfaces. Langmuir, 2015, 31, 1385-1392.	3.5	22
29	Performance Improvement of Pd/ZnO-NR/Si MIS Gas Sensor Device in Capacitive Mode: Correlation With Equivalent-Circuit Elements. IEEE Transactions on Electron Devices, 2016, 63, 1266-1273.	3.0	22
30	An Efficient Room Temperature Ethanol Sensor Device Based on p-n Homojunction of TiO <sub>2</sub> Nanostructures. IEEE Transactions on Electron Devices, 2019, 66, 1063-1068.	3.0	21
31	Influence of rGO Cladding in Improving the Sensitivity and Selectivity of ZnO Nanoflowers-Based Alcohol Sensor. IEEE Sensors Journal, 2018, 18, 1820-1827.	4.7	20
32	Vedic Divider: Novel Architecture (ASIC) for High Speed VLSI Applications. , 2011, , .		19
33	Improved matrix multiplier design for high-speed digital signal processing applications. IET Circuits, Devices and Systems, 2014, 8, 27-37.	1.4	19
34	An efficient BTX sensor based on p-type nanoporous titania thin films. Microelectronics Reliability, 2015, 55, 558-564.	1.7	19
35	Impact of Device Configurations on Sensing Performance of WS <sub>2</sub> -Based Gas Sensors: A Review. IEEE Sensors Journal, 2021, 21, 22414-22425.	4.7	19
36	Highly Sensitive ppb Level Methanol Sensor by Tuning C:O Ratio of rGO-TiO <sub>2</sub> Nanotube Hybrid Structure. IEEE Nanotechnology Magazine, 2017, 16, 1122-1128.	2.0	18

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37	Hybrid Fabrication of Highly Rectifying $\text{TiO}_2/\text{TiO}_2/\text{TiO}_2$ Homojunction Based on Nanostructured $\text{TiO}_2$ . IEEE Electron Device Letters, 2015, 36, 505-507.	3.9	16
38	Ultrasensitive Pd-Ag/ZnO/Nickel Alloy-Based Metal-Insulator-Metal Methane Sensor on Micromachined Silicon Substrate. IEEE Sensors Journal, 2012, 12, 2526-2527.	4.7	15
39	Role of Junction Geometry in Determining the Rectification Performance of Nanostructured $\text{TiO}_2$ -Based p-n Junctions. IEEE Transactions on Electron Devices, 2015, 62, 1984-1990.	3.0	15
40	A potential gas sensor device based on Pd/RGO/ $\text{TiO}_2$ nanotube ternary hybrid junction. Microelectronics Reliability, 2017, 78, 299-306.	1.7	15
41	Resonant Frequency Tuning Technique for Selective Detection of Alcohols by $\text{TiO}_2$ Nanorod-Based Capacitive Device. IEEE Nanotechnology Magazine, 2017, 16, 820-825.	2.0	13
42	Efficient Gas Sensor Devices Based on Surface Engineered Oxygen Vacancy Controlled $\text{TiO}_2$ Nanosheets. IEEE Transactions on Electron Devices, 2017, 64, 2357-2363.	3.0	13
43	Influence of temperature, voltage and hydrogen on the reversible transition of electrical conductivity in sol-gel grown nanocrystalline $\text{TiO}_2$ thin film. Journal of Materials Science: Materials in Electronics, 2013, 24, 1658-1663.	2.2	11
44	A Proton Hopping-Guided 3-D Space Charge Model for Quantitative Understanding of Humidity-Dependent Gas Sensing by $\text{TiO}_2$ Nanoflower-Based Devices. IEEE Nanotechnology Magazine, 2017, 16, 180-188.	2.0	11
45	Fabrication Strategies and Measurement Techniques for Performance Improvement of Graphene/Graphene Derivative Based FET Gas Sensor Devices: A Review. IEEE Sensors Journal, 2021, 21, 10231-10240.	4.7	11
46	Structural and Optical Characterizations of Electrochemically Grown Connected and Free-Standing $\text{TiO}_2$ Nanotube Array. Journal of Electronic Materials, 2014, 43, 3229-3235.	2.2	10
47	Tuning of electronic properties of edge oxidized armchair graphene nanoribbon by the variation of oxygen amounts and positions. Journal of Materials Science: Materials in Electronics, 2017, 28, 9039-9047.	2.2	10
48	Fabrication, Characterization, and Gas Sensing Performance of Pd, RGO, and $\text{MnO}_2$ Nanoflowers-Based Ternary Junction Device. IEEE Transactions on Electron Devices, 2019, 66, 3982-3987.	3.0	10
49	Resistive and Capacitive Measurement of Nano-Structured Gas Sensors. Environmental Chemistry for A Sustainable World, 2019, , 25-62.	0.5	9
50	Vedic Mathematics Based 32-Bit Multiplier Design for High Speed Low Power Processors. International Journal on Smart Sensing and Intelligent Systems, 2011, 4, 268-284.	0.7	9
51	Potentiality of Density-Functional Theory in Analyzing the Devices Containing Graphene-Crystalline Solid Interfaces: A Review. IEEE Transactions on Electron Devices, 2017, 64, 4738-4745.	3.0	8
52	Prediction and Implementation of Graphene and Other Two-Dimensional Material Based Superconductors: A Review. IEEE Transactions on Applied Superconductivity, 2020, 30, 1-9.	1.7	8
53	Understanding the Highly Selective Methanol Sensing Mechanism of Electrodeposited Pristine $\text{MoS}_2$ Using First Principle Analysis. IEEE Sensors Journal, 2021, 21, 16484-16491.	4.7	8
54	Vedic division methodology for high-speed very large scale integration applications. Journal of Engineering, 2014, 2014, 51-59.	1.1	7

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55	Voltage Controlled Rupturing of TiO <sub>2</sub> Nanotubes for Gas Sensor Device Applications: Correlation With Surface and Edge Energy. IEEE Transactions on Electron Devices, 2016, 63, 4933-4938.	3.0	7
56	Honeycomb Texturing of Hierarchical Nanoflowers of WO <sub>3</sub> as an Efficient Route to Improve Repeatability and Stability of Room Temperature Vapor Sensor. IEEE Transactions on Device and Materials Reliability, 2020, 20, 84-91.	2.0	7
57	Low temperature acetone sensor based on Sol-gel grown nano TiO <sub>2</sub> thin film. , 2013, , .		6
58	Understanding the Apparent Non-Reliability in the Sensing Characteristics of MnO <sub>2</sub> Self-Assembled Hierarchical Nanostructure. IEEE Transactions on Device and Materials Reliability, 2018, 18, 628-635.	2.0	6
59	Microcontroller based Power Efficient Signal Conditioning Unit for Detection of a Single Gas using MEMS based Sensor. International Journal on Smart Sensing and Intelligent Systems, 2010, 3, 771-782.	0.7	6
60	Capacitive Mode Vapor Sensing Phenomenon in ZnO Homo Junction: An Insight Through Space Charge Model and Electrical Equivalent Circuit. IEEE Sensors Journal, 2022, 22, 9483-9490.	4.7	6
61	Data-driven design of ternary alloy catalysts for enhanced oxide-based gas sensors'™ performance. Computational Materials Science, 2019, 161, 255-260.	3.0	5
62	Noise Analysis-Resonant Frequency-Based Combined Approach for Concomitant Detection of Unknown Vapor Type and Concentration. IEEE Transactions on Instrumentation and Measurement, 2019, 68, 3004-3011.	4.7	5
63	Correlation Between Ammonia Selectivity and Temperature Dependent Functional Group Tuning of GO. IEEE Nanotechnology Magazine, 2021, 20, 129-136.	2.0	5
64	Irreversible n to p Transition and Corresponding Performance Improvement of RGO/TiO <sub>2</sub> Nanotubes Hybrid Vapor Sensor Devices by Varying Electrophoretic Deposition Time. IEEE Nanotechnology Magazine, 2018, 17, 1098-1105.	2.0	4
65	Time Dependent Morphological Evolution of Hydrothermally Derived MnO <sub>2</sub> Nanostructures and Corresponding Methanol Vapor Sensing Performance. IEEE Nanotechnology Magazine, 2019, 18, 502-508.	2.0	4
66	MEMS based nano crystalline zinc oxide methane gas sensors. , 2007, , .		3
67	CVD Grown Materials for High Temperature Electronic Devices : A Review. Transactions of the Indian Ceramic Society, 2011, 70, 1-9.	1.0	3
68	Electrochemically grown nano-structured TiO <sub>2</sub> based low power resistive random access memory. , 2013, , .		3
69	Hierarchical MnO <sub>2</sub> Nanoflowers Based Efficient Room Temperature Alcohol Sensor. , 2018, , .		3
70	Fabrication, Structural, Electrical, and Optical Characterizations of p-Nanoparticle- and n-Nanotube-Based ZnO Homo Junction. IEEE Transactions on Electron Devices, 2020, 67, 4256-4261.	3.0	3
71	A review on the sensing performances for three different ternary hybrid (Pd/RGO/TiO <sub>2</sub> -NTs,) Tj ETQq1 1 0.784314 rgBT /Overlock 10 Tj 5 117-122.	1.0	3
72	Functionalization of Graphene and Its Derivatives for Developing Efficient Solid-State Gas Sensors: Trends and Challenges. Materials Horizons, 2020, , 245-284.	0.6	3

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73	The Effect of Catalytic Metal Contact on Methane Sensing Performance of Nanoporous ZnO -Si Heterojunction. International Journal on Smart Sensing and Intelligent Systems, 2010, 3, 273-291.	0.7	3
74	Prediction of Adsorption Probability of Oxidizing and Reducing Species on 2-D Hybrid Junction of rGO-ZnO From First Principle Analysis. IEEE Nanotechnology Magazine, 2019, 18, 119-125.	2.0	2
75	Understanding the Improved Vapor Sensor Device Performance of Dual Surface Engineered WO <sub>3</sub> Nanospheres Using Semi-Quantitative Energy Band Model. IEEE Electron Device Letters, 2020, 41, 912-915.	3.9	2
76	Capacitive Mode Methanol Sensing by ZnO Nanorods Based Devices. International Journal of Materials Mechanics and Manufacturing, 2017, 5, 92-95.	0.2	2
77	Methane Detection by MIM Sensor Devices Based on Nano ZnO Thin Films Obtained by Sol-Gel and by Anodization: A Comparative Study. , 2010, , .		1
78	Reciprocal Unit Based on Vedic Mathematics for Signal Processing Applications. , 2013, , .		1
79	Integration of ZnO nanoflakes with MEMS platform and its application as gas sensor. , 2013, , .		1
80	ASIC implementation of high speed processor for computing fast hartley transformation. , 2013, , .		1
81	Low temperature low ppm acetone detection by Pd/TiO <sub>2</sub> /p-Si Metal-Insulator-Semiconductor devices. , 2013, , .		1
82	Influence of distributed reduced graphene oxide clusters on methanol sensing performance of TiO <sub>2</sub> nanotube based device. CSI Transactions on ICT, 2018, 6, 71-76.	1.0	1
83	ZnO nanoflake based metal-insulator-metal methane sensor for underground coalmine application. , 2012, , .		0
84	n-TiO <sub>2</sub> /p-Si heterojunction devices as a potential ethanol sensor. , 2015, , .		0
85	Improvement of Acetone Sensing Performance in rGO Modified ZnO Nanotubes Based Binary Hybrid Structure at Low Temperature. , 2018, , .		0
86	Selective molecular sieving by tailoring the etch hole dimensions of rGO in rGO-ZnO nanotubes based hybrid structure. , 2018, , .		0
87	An Integrated CO <sub>2</sub> Sensor Using TiO <sub>2</sub> NT/RGO Hybrid Sensing Layer with embedded Micro hot Plate. , 2019, , .		0
88	ZnO/RGO Heterojunction Based near Room Temperature Alcohol SENSOR with Improved Efficiency. Engineering Proceedings, 2021, 6, .	0.4	0
89	Chemically Functionalized Penta-Graphene for Electronic Device Applications: Journey from Theoretical Prediction to Practical Implementation. Carbon Nanostructures, 2019, , 335-361.	0.1	0
90	Data-Driven Search for the Optimal Ag-Pd-Pt-Based Electrode Alloy Chemistry for ZnO-Based Methane Sensor. Journal of the Institution of Engineers (India): Series D, 0, , .	1.0	0