**List of publications**

1. **Two-Dimensional (2D) Materials & Application**
2. S. Goswami, C.C. de Oliveira, B. Ipaves, P.L. Mahapatra, V. Pal, S. Sarkar, ... & C.S. Tiwary, (2025). Exceptionally High Nonlinear Optical Response in Two‐dimensional Type II Dirac Semimetal Nickel Di‐Telluride (NiTe2). *Laser & Photonics Reviews*, 2400999.
3. K. Rajeev, B. Ipaves, C. Campos de Oliveira, S. Punathil Raman, S. Kar, D.S Galvao, ... & C.S. Tiwary, (2025). Enhanced Non‐Invasive Radio Frequency Heating Using 2D Pyrite (Pyritene). *Small Methods*, 2402066.
4. A Rawat, S.K. Srivastava, C.S. Tiwary, A.K. Gupta, [An LED-driven Hematite/Bi4O5I2 nanocomposite as an S-scheme heterojunction photocatalyst for efficient degradation of phenolic compounds in real wastewater](https://scholar.google.co.in/scholar?oi=bibs&cluster=18115932962064612744&btnI=1&hl=en), [J. Mater. Chem. A](https://doi.org/10.1039/2050-7496/2013), 13 (2025), 1271-1286 <https://doi.org/10.1039/D4TA07324J>
5. P. Ghosal, C.C. Gowda, D. Chandravanshi, A. Malya, K. Chattopadhyay, P. Kumbhakar, ... & C.S. Tiwary, (2025). Manganese telluride quantum dot decorated 3D printed structures for dye-degradation. *Materials Research Bulletin*, *189*, 113438.
6. S. Slathia, A.B. Santos, G. Costin, S. Sarkar, N.R. Glavin, A.K. Roy, ... & C.S. Tiwary, (2025). Phosphoferrene for Mancozeb Detection: A natural 2D phosphate mineral enhancing Pesticide Sensing. *Journal of Environmental Chemical Engineering*, 116614.
7. C.C. Gowda, A. Kartsev, N. Tiwari, S.Sarkar, S.A. Alexander, V. Chaudhary, C.S. Tiwary, Harvesting Magneto-Acoustic Waves Using Magnetic 2D Chromium Telluride (CrTe3), Small, 2024, 20, 2405197. https://doi.org/10.1002/smll.202405197
8. R. Nazir, P. Kumbhakar, S. Agarwal, A. Parui, S. Roy, P.M. Ajayan, A.K. Singh, S. Sharma, C.S. Tiwary, Gd Active Sites Modulating the Intermediate Adsorption and Activation in Exfoliated Gadolinium Telluride for Oxygen Evolution and Reduction Reactions, ACS Appl. Eng. Mater.2024, *2* (9), 2302-2312. https://doi.org/10.1021/acsaenm.4c00415
9. R. Mahle, S. Suran, A. Singh, P. Kumbhakar, D.S. Galvao, V.R.S. Cheela, B.Dubey, R.R. Nair, C.S. Tiwary, R. Banerjee, Sachharomyces Cerevisae Dry Powder-Mediated Exfoliation of Graphite Chunks into Functionalized Few-Layer Graphene, ACS Sustainable Chem. Eng. 2024, 12 (32), 11891-11900. https://doi.org/10.1021/acssuschemeng.4c00832
10. S. Slathia, B. Ipaves, C.C. de Oliveira, S.D. Negedu, S. Sarkar, P.A.S. Autreto, C.S. Tiwary, Ultralow Detection of Mancozeb Using Two-Dimensional Cobalt Telluride (CoTe2), Langmuir 2024, *40* (30), 15731-15740. https://doi.org/10.1021/acs.langmuir.4c01549
11. A. Chakraborty, B. Ipaves, C.C. de Oliveira, S.D. Negedu, S. Sarkar, B. Lahiri, P.A.S. Autreto, C.S. Tiwary, Subpicomolar Dopamine Detection Using Two-Dimensional Cobalt Telluride, ACS Appl. Eng. Mater. 2024, *2* (7), 1935-1947. <https://doi.org/10.1021/acsaenm.4c00321>
12. G.G. Ninan, M. Varghese, C.C. Gowda, Y. Bylappa, A. Nag, M. Balachandran, L.R. Junior, R. Tromer, D.S.S. Galvao, C.S. Tiwary, P. Kumbhakar, Optical properties of MnTe2 few-layer quantum dots, Optical Materials, 2025,159, 116619. https://doi.org/10.1016/j.optmat.2024.116619
13. S. Slathia, C. Wei, M. Tripathi, R. Tromer, S.D. Negedu, C.S. Boland, S. Sarkar, D.S. Galvao, A. Dalton, C.S. Tiwary, Thickness dependent tribological and magnetic behavior of two-dimensional cobalt telluride (CoTe2), 2D Mater. 11 (2024) 035006. https://doi.org/10.1088/2053-1583/ad3cec.
14. A. Rawat, S.K. Srivastava, C.S. Tiwary, A.K. Gupta, Visible light driven Z-scheme α-MnO2 (1D)/Bi7O9I3 (2D) heterojunction photocatalyst for efficient degradation of bisphenol A in water, J. Environ. Chem. Eng. 12 (2024) 112879. https://doi.org/10.1016/J.JECE.2024.112879.
15. N. Mandal, P. Kumbhakar, A. Dey, P. Kumbhakar, U. Chatterjee, C. J. S. de Matos, T. Prasad Yadav, N. Krishna Mukhopadhyay, K. Biswas, V. Kochat, C. Sekhar Tiwary, Optical Resonator-Enhanced Random Lasing using Atomically Thin Aluminium-based Multicomponent Quasicrystals, Opt. Laser Technol. 175 (2024) 110746. <https://doi.org/10.1016/J.OPTLASTEC.2024.110746>.
16. C. Chowde Gowda, D. Chandravanshi, R.M. Tromer, A. Malya, K. Chattopadhyay, D.S. Galvão, C.S. Tiwary, Tuning the band gap of manganese telluride quantum dots (MnTe QDs) for photocatalysis, Appl. Phys. A. 130 (2024) 299. https://doi.org/10.1007/s00339-024-07378-x.
17. A. Pramanik, P.L. Mahapatra, R. Tromer, J. Xu, G. Costin, C. Li, S. Saju, S. Alhashim, K. Pandey, A. Srivastava, R. Vajtai, D.S. Galvao, C.S. Tiwary, P.M. Ajayan, Biotene: Earth-Abundant 2D Material as Sustainable Anode for Li/Na-Ion Battery, ACS Appl. Mater. Interfaces. 16 (2024) 2417–2427. https://doi.org/10.1021/acsami.3c15664.
18. S. Kumar, M. Hojamberdiev, A. Chakraborty, R. Mitra, R. Chaurasiya, M. Kwoka, C.S. Tiwary, K. Biswas, M. Kumar, Quasicrystal Nanosheet/α-Fe2O3 Heterostructure-Based Low Power NO2 Sensors: Experimental and DFT Studies, ACS Appl. Mater. Interfaces. 16 (2024) 16687–16698. https://doi.org/10.1021/acsami.4c00201.
19. R. Cai, Y. Wang, J. Wang, J. Zhang, C. Yu, J. Cui, Y. Zhang, C.S. Tiwary, Y. Wu, Self-Assembled Ultrathin H-terminated Si Nanosheet/g-C3N4 Heterojunction for Photocatalytic Hydrogen Evolution, ACS Appl. Nano Mater. 7 (2024) 11136–11145. https://doi.org/10.1021/acsanm.4c00315.
20. S.K. Kuila, D.K. Gorai, S. Agarwal, R. Sarkar, C.S. Tiwary, T.K. Kundu, Gd3+ Encapsulation on 2D-g-C3N4 Nanostructure for Spintronics and Ultrasound Assisted Photocatalytic Applications: First-Principles and Experimental Studies, Small. n/a (2024) 2401670. https://doi.org/https://doi.org/10.1002/smll.202401670.
21. C. Chowde Gowda, J. Cavin, P. Kumbhakar, C.S. Tiwary, R. Mishra, Flexible Nanogenerators Based on Enhanced Flexoelectricity in Mn3O4 Membranes, Small. 20 (2024) 2307167. https://doi.org/https://doi.org/10.1002/smll.202307167.
22. K. R., A.K. Singh, S. Das, S. Sarkar, T.K. Kundu, S. Kar, P.R. Sreeram, C.S. Tiwary, Giant Stark effect assisted radio frequency energy harvesting using atomically thin earth-abundant iron sulphide (FeS2), J. Mater. Chem. A. 12 (2024) 8940–8951. https://doi.org/10.1039/D3TA07906F.
23. P.L. Mahapatra, R. Tromer, A. Jayakumar, G. Costin, B. Lahiri, R.R. Nair, D. Roy, A.K. Roy, P. Pandey, D.S. Galvao, C.S. Tiwary, 3D-printed flexible energy harvesting devices designed using non-layered two-dimensional natural tourmaline silicates, J. Mater. Chem. C. 12 (2024) 3418–3429. https://doi.org/10.1039/D3TC04167K.
24. R. Cai, Y. Wang, J. Wang, J. Zhang, C. Yu, Y. Qin, J. Cui, Y. Zhang, C.S. Tiwary, Y. Wu, Accelerated hydrogen production on atomically thin silicon nanosheets photocatalyst with unique surface adsorption chemistry, Int. J. Hydrogen Energy. 51 (2024) 929–935. https://doi.org/10.1016/J.IJHYDENE.2023.09.064.
25. C. Chowde Gowda, J. Cavin, P. Kumbhakar, C.S. Tiwary, R. Mishra, Flexible Nanogenerators Based on Enhanced Flexoelectricity in Mn3O4 Membranes, Small. (2023). https://doi.org/10.1002/smll.202307167.
26. C.C. Gowda, R. Tromer, D. Chandravanshi, P. Pandey, K. Chattopadhyay, D.S. Galvao, C.S. Tiwary, Two-dimensional manganese di-telluride based triboelectric nanogenerator, Nano Energy. 117 (2023) 108833. https://doi.org/10.1016/j.nanoen.2023.108833.
27. S. Kanneth Sivaraman, S. Punathil Raman, K. R, T. Subair, S. Abraham Sam, A.K. U, S.S. Nair, S. Shaji, C.S. Tiwary, M.R. Anantharaman, Lead-Free Piezoelectric Energy Harvester Based on 2D Bismuth Titanate, ACS Appl. Mater. Interfaces. (2023). https://doi.org/10.1021/acsami.3c13811.
28. T. Singha, P. Kumbhakar, C.S. Tiwary, P.K. Datta, Broadband Optical Nonlinear Refraction of Atomically thin Layered Gallium Telluride, in: Front. Opt. + Laser Sci. 2023 (FiO, LS), Optica Publishing Group, Washington, D.C., 2023: p. JTu4A.23. https://doi.org/10.1364/FIO.2023.JTu4A.23.
29. P.L. Mahapatra, C. Campos de Oliveira, P.R. Sreeram, S.K. Sivaraman, S. Sarkar, G. Costin, B. Lahiri, P.A. da S. Autreto, C.S. Tiwary, Hydrogen Sulfide Gas Detection Using Two-Dimensional Rhodonite Silicate, Chem. Mater. 35 (2023) 8135–8144. https://doi.org/10.1021/acs.chemmater.3c01593.
30. A. Chakraborty, P. Kumbhakar, P.L. Mahapatra, S.K. Sinha, B. Lahiri, C.S. Tiwary, Trace Detection of Ciprofloxacin in Milk by Label-Free Raman Enhancement using Two-Dimensional Magnesiochromite, ACS Appl. Eng. Mater. 1 (2023) 2494–2502. https://doi.org/10.1021/acsaenm.3c00326.
31. P. Kumbhakar, P.L. Mahapatra, M. Das, R.S. Ambekar, R. Das, C.S. Tiwary, Engineering Materials at the Atomic Scale for Energy, Environment and Health-Care Applications, Trans. Indian Natl. Acad. Eng. 8 (2023) 341–352. https://doi.org/10.1007/s41403-023-00414-x.
32. A. Pramanik, P. Kumbhakar, A. Dey, K. Mondal, D. Banerjee, V.R. Soma, P. Kumbhakar, C.S. Tiwary, Synthesis, Green Photoluminescence and Studies of Nonlinear Optical Spatial Self Phase Modulation Effect in 2D Ga 2 Te 3 Nanosheets, ACS Appl. Opt. Mater. 1 (2023) 1634–1642. https://doi.org/10.1021/acsaom.3c00119.
33. N. Mandal, N. Glavin, A.K. Roy, M.E. McConney, S. Sarkar, V. Kochat, C.S. Tiwary, Dual-wavelength amplified spontaneous emission from interface-engineered polymer films using atomically thin red coral, Opt. Mater. (Amst). 142 (2023) 114152. https://doi.org/10.1016/j.optmat.2023.114152.
34. C.S. Tiwary, Engineering Materials at the Atomic Scale for Energy, Environment, and Healthcare Applications, Microsc. Microanal. 29 (2023) 20–20. https://doi.org/10.1093/micmic/ozad067.009.
35. P.L. Mahapatra, A.K. Singh, R. Tromer, P. Kumbhakar, S.K. Sinha, B. Lahiri, T.K. Kundu, D.S. Galvao, C.S. Tiwary, Energy harvesting using two-dimensional magnesiochromite (MgCr2O4), Mater. Today Nano. 23 (2023) 100374. https://doi.org/10.1016/j.mtnano.2023.100374.
36. S.K. Kuila, S.K. Guchhait, D. Mandal, P. Kumbhakar, A. Chandra, C.S. Tiwary, T.K. Kundu, Dimensionality effects of g-C3N4 from wettability to solar light assisted self-cleaning and electrocatalytic oxygen evolution reaction, Chemosphere. 333 (2023) 138951. https://doi.org/10.1016/j.chemosphere.2023.138951.
37. C.C. Gowda, R. Tromer, P. Pandey, D. Chandravanshi, A. Chandra, K. Chattopadhyay, D.S. Galvao, C.S. Tiwary, Magnetic behavior of two-dimensional manganese telluride, 2D Mater. 10 (2023) 045006. https://doi.org/10.1088/2053-1583/ace635.
38. S. Prodhan, K.K. Chauhan, T. Singha, M. Karmakar, N. Maity, R. Nadarajan, P. Kumbhakar, C.S. Tiwary, A.K. Singh, M.M. Shaijumon, P.K. Datta, Comprehensive excited state carrier dynamics of 2D selenium: One-photon and multi-photon absorption regimes, Appl. Phys. Lett. 123 (2023). https://doi.org/10.1063/5.0156843.
39. P. Kumbhakar, J.S. Jayan, A. Sreedevi Madhavikutty, P.R. Sreeram, A. Saritha, T. Ito, C.S. Tiwary, Prospective applications of two-dimensional materials beyond laboratory frontiers: A review, IScience. 26 (2023) 106671. https://doi.org/10.1016/j.isci.2023.106671.
40. S.S. Mishra, S. Kumar, P. Kumbhakar, N.K. Katiyar, R. Tromer, C.F. Woellner, D.S. Galvao, C.S. Tiwary, M. Kumar, K. Biswas, Utilization of two-dimensional multicomponent Quasicrystal for NO2 gas detection, Mater. Chem. Phys. 298 (2023) 127449. https://doi.org/10.1016/j.matchemphys.2023.127449.
41. S. Kumar, R. Chaurasiya, S.S. Mishra, P. Kumbhakar, G. Meng, C.S. Tiwary, K. Biswas, M. Kumar, Nanocomposites of Quasicrystal Nanosheets and MoS 2 Nanoflakes for NO 2 Gas Sensors, ACS Appl. Nano Mater. 6 (2023) 5952–5962. https://doi.org/10.1021/acsanm.3c00346.
42. P. Kumbhakar, M.S. Sha, C.S. Tiwary, A.G.A. Muthalif, S. Al-maadeed, K.K. Sadasivuni, An efficient transition metal chalcogenide sensor for monitoring respiratory alkalosis, 3 Biotech. 13 (2023) 109. https://doi.org/10.1007/s13205-023-03497-z.
43. M. Karmakar, P. Kumbhakar, T. Singha, C.S. Tiwary, D. Chanda, P.K. Datta, Anomalous indirect carrier relaxation in direct band gap atomically thin gallium telluride, Phys. Rev. B. 107 (2023) 075429. https://doi.org/10.1103/PhysRevB.107.075429.
44. S.S. Mishra, P. Kumbhakar, S. Nellaiappan, N.K. Katiyar, R. Tromer, C.F. Woellner, D.S. Galvao, C.S. Tiwary, C. Ghosh, A. Dasgupta, K. Biswas, Two‐Dimensional Multicomponent Quasicrystal as Bifunctional Electrocatalysts for Alkaline Oxygen and Hydrogen Evolution Reactions, Energy Technol. 11 (2023) 2200860. https://doi.org/10.1002/ente.202200860.
45. S. Kumar, M.A. Khan, S.S. Mishra, R. Chaurasiya, N. Sharma, M. Gang, C.S. Tiwary, K. Biswas, M. Kumar, 1T and 2H mixed phase WS 2 nanoflakes decorated with quasicrystal nanosheets for NO 2 sensors, J. Mater. Chem. C. 11 (2023) 15119–15129. https://doi.org/10.1039/D3TC02524A
46. P. Kumbhakar, I. Das Jana, S. Basu, S. Mandal, S. Banerjee, S. Roy, C.C. Gowda, A. Chakraborty, A. Pramanik, P. Lahiri, B. Lahiri, A. Chandra, P. Kumbhakar, A. Mondal, P.K. Maiti, C.S. Tiwary, Utilization of DNA and 2D metal oxide interaction for an optical biosensor, Phys. Chem. Chem. Phys. 25 (2023) 17143–17153. https://doi.org/10.1039/D3CP01402A.
47. K. R., A.K. Singh, S. Punathil Raman, P.L. Mahapatra, D.S. Galvao, C.S. Tiwary, Energy harvesting from Radio waves using few-layer 2D Galena (Galenene), Nanoscale. (2023). https://doi.org/10.1039/D3NR00740E.
48. P.L. Mahapatra, A.K. Singh, R. Tromer, K. R., A. M., G. Costin, B. Lahiri, T.K. Kundu, P.M. Ajayan, E.I. Altman, D.S. Galvao, C.S. Tiwary, Energy harvesting using two-dimensional (2D) d-silicates from abundant natural minerals, J. Mater. Chem. C. 11 (2023) 2098–2106. https://doi.org/10.1039/D2TC04605A.
49. N. Mandal, A. Pramanik, A. Dey, P. Kumbhakar, V. Kochat, A.R.S. Gautam, N. Glavin, A.K. Roy, P.M. Ajayan, C.S. Tiwary, Synthesis of atomically thin yellow pearl: An impetus for nonlinear optical effect assisted light scattering application, Opt. Mater. (Amst). 135 (2023) 113325. <https://doi.org/10.1016/j.optmat.2022.113325>.
50. S. Das, S. Pal, P. Kumbhakar, R.M. Tromer, S.D. Negedu, D.S. Galvao, S. Das, C.S. Tiwary, S.K. Ray, Vacancy-Mediated Anomalous Emission Characteristics of Size-Confined Semiconducting CoTe 2, ACS Appl. Mater. Interfaces. 14 (2022) 53139–53149. https://doi.org/10.1021/acsami.2c14318.
51. S. Prodhan, M. Karmakar, P. Kumbhakar, C.S. Tiwary, P.K. Datta, Trap state dominated ultrafast charge carrier dynamics of two dimensional crystalline ultrathin trigonal Selenium, in: Front. Opt. + Laser Sci. 2022 (FIO, LS), Optica Publishing Group, Washington, D.C., 2022: p. JTu5A.25. https://doi.org/10.1364/FIO.2022.JTu5A.25.
52. R. Mahle, P.L. Mahapatra, A.K. Singh, P. Kumbhakar, M. Paliwal, C.S. Tiwary, R. Banerjee, Anaerobe Syntrophic Co-culture-Mediated Green Synthesis of Ultrathin Niobium Carbide (NbC) Sheets for Flexoelectricity Generation, ACS Sustain. Chem. Eng. 10 (2022) 13650–13660. https://doi.org/10.1021/acssuschemeng.2c03508.
53. A. Pramanik, P. Kumbhakar, S.D. Negedu, C.S. Tiwary, Identification of aggregated 2D cobalt tellurides using a spatial self-phase modulation technique, Opt. Lett. 47 (2022) 4965. https://doi.org/10.1364/OL.465545.
54. C. Chowde Gowda, A. Mathur, A. Parui, P. Kumbhakar, P. Pandey, S. Sharma, A. Chandra, A.K. Singh, A. Halder, C. Sekhar Tiwary, Understanding the electrocatalysis OER and ORR activity of ultrathin spinel Mn3O4, J. Ind. Eng. Chem. (2022). https://doi.org/10.1016/j.jiec.2022.05.024.
55. L.M. Sassi, A. Krishnamoorthy, J.A. Hachtel, S. Susarla, A. Apte, S. Castro-Pardo, A. Ajnsztajn, R. Vajtai, P. Vashishta, C.S. Tiwary, A.B. Puthirath, P.M. Ajayan, Low temperature CVD growth of WSe 2 enabled by moisture-assisted defects in the precursor powder, 2D Mater. 9 (2022) 045026. https://doi.org/10.1088/2053-1583/ac8e16.
56. P.L. Mahapatra, R. Tromer, P. Pandey, G. Costin, B. Lahiri, K. Chattopadhyay, A. P. M., A.K. Roy, D.S. Galvao, P. Kumbhakar, C.S. Tiwary, Synthesis and Characterization of Biotene: A New 2D Natural Oxide From Biotite, Small. (2022) 2201667. https://doi.org/10.1002/smll.202201667.
57. S.D. Negedu, A. Karstev, M. Palit, P. Pandey, F.E. Olu, A.K. Roy, G.P. Das, P.M. Ajayan, P. Kumbhakar, C.S. Tiwary, Energy Harvesting from Atomically Thin Co 2 Te 3, J. Phys. Chem. C. (2022). https://doi.org/10.1021/acs.jpcc.2c02102.
58. P. V Sarma, R. Nadarajan, R. Kumar, R.M. Patinharayil, N. Biju, S. Narayanan, G. Gao, C.S. Tiwary, M. Thalakulam, R.N. Kini, A.K. Singh, P.M. Ajayan, M.M. Shaijumon, Growth of highly crystalline ultrathin two-dimensional selenene, 2D Mater. 9 (2022) 045004. https://doi.org/10.1088/2053-1583/ac787f.
59. P.L. Mahapatra, A.K. Singh, B. Lahiri, T.K. Kundu, A.K. Roy, P. Kumbhakar, C.S. Tiwary, Energy Harvesting Using Cotton Fabric Embedded with 2D Hexagonal Boron Nitride, ACS Appl. Mater. Interfaces. 14 (2022) 30343–30351. https://doi.org/10.1021/acsami.2c04941.
60. S. Kumar Kuila, A. Ghorai, A. Midya, C. Sekhar Tiwary, T. Kumar Kundu, Chemisorption of gadolinium ions on 2D-graphitic carbon nitride nanosheet for enhanced solid-state supercapacitor performance, Chem. Phys. Lett. 796 (2022) 139572. https://doi.org/10.1016/j.cplett.2022.139572.
61. S. Kumar Kuila, P. Kumbhakar, C. Sekhar Tiwary, T. Kumar Kundu, Photon and vibration synergism on planar defects induced 2D-graphitic carbon nitride for ultrafast remediation of dyes and antibiotic ampicillin, J. Mater. Sci. 57 (2022) 8658–8675. https://doi.org/10.1007/s10853-022-07196-7.
62. S.D. Negedu, R. Tromer, S. Siddique, C.F. Woellner, F.E. Olu, M. Palit, A.K. Roy, P. Pandey, D.S. Galvao, P. Kumbhakar, C.S. Tiwary, Enhancement in magnetization of two-dimensional cobalt telluride and its magnetic field-assisted photocatalytic activity, Appl. Phys. A. 128 (2022) 379. https://doi.org/10.1007/s00339-022-05425-z.
63. Y. Li, Y. Wang, R. Cai, C. Yu, J. Zhang, J. Wu, C.S. Tiwary, J. Cui, Y. Zhang, Y. Wu, Pseudocapacitive TiNb2O7/reduced graphene oxide nanocomposite for high–rate lithium ion hybrid capacitors, J. Colloid Interface Sci. 610 (2022) 385–394. https://doi.org/10.1016/j.jcis.2021.12.057.
64. J. V, S.S. Mishra, K.U. MB, S.P. Thomas, C.S. Tiwary, K. Biswas, V.B. Kamble, Highly Sensitive and Selective Triethylamine Sensing through High-Entropy Alloy (Ti–Zr–Cr–V–Ni) Nanoparticle-Induced Fermi Energy Control of MoS 2 Nanosheets, ACS Appl. Mater. Interfaces. 14 (2022) 13653–13664. https://doi.org/10.1021/acsami.2c00531.
65. P.L. Mahapatra, P. Kumbhakar, B. Lahiri, S.K. Sinha, C.S. Tiwary, Real-time quality monitoring and organic pollutants degradation of water using atomically thin Magnesiochromite, Mater. Res. Bull. 146 (2022) 111590. https://doi.org/10.1016/j.materresbull.2021.111590.
66. T. Singha, M. Karmakar, P. Kumbhakar, C.S. Tiwary, P.K. Datta, Atomically thin gallium telluride nanosheets: A new 2D material for efficient broadband nonlinear optical devices, Appl. Phys. Lett. 120 (2022) 021101. https://doi.org/10.1063/5.0073205.
67. S.D. Negedu, R. Tromer, C.C. Gowda, C.F. Woellner, F.E. Olu, A.K. Roy, P. Pandey, D.S. Galvao, P.M. Ajayan, P. Kumbhakar, C.S. Tiwary, Two-dimensional cobalt telluride as a piezo-tribogenerator, Nanoscale. 14 (2022) 7788–7797. <https://doi.org/10.1039/D2NR00132B>.
68. A.K. Singh, P. Kumbhakar, A. Krishnamoorthy, A. Nakano, K.K. Sadasivuni, P. Vashishta, A.K. Roy, V. Kochat, C.S. Tiwary, Review of strategies toward the development of alloy two-dimensional (2D) transition metal dichalcogenides, IScience. 24 (2021) 103532. https://doi.org/10.1016/j.isci.2021.103532.
69. S. Siddique, C. Chowde Gowda, S. Demiss, R. Tromer, S. Paul, K.K. Sadasivuni, E.F. Olu, A. Chandra, V. Kochat, D.S. Galvão, P. Kumbhakar, R. Mishra, P.M. Ajayan, C. Sekhar Tiwary, Emerging two-dimensional tellurides, Mater. Today. (2021). https://doi.org/10.1016/j.mattod.2021.08.008.
70. K. Hsieh, V. Kochat, T. Biswas, C.S. Tiwary, A. Mishra, G. Ramalingam, A. Jayaraman, K. Chattopadhyay, S. Raghavan, M. Jain, A. Ghosh, Spontaneous Time-Reversal Symmetry Breaking at Individual Grain Boundaries in Graphene, Phys. Rev. Lett. 126 (2021) 206803. https://doi.org/10.1103/PhysRevLett.126.206803.
71. P. Kumbhakar, C. Chowde Gowda, P.L. Mahapatra, M. Mukherjee, K.D. Malviya, M. Chaker, A. Chandra, B. Lahiri, P.M. Ajayan, D. Jariwala, A. Singh, C.S. Tiwary, Emerging 2D metal oxides and their applications, Mater. Today. 45 (2021) 142–168. https://doi.org/10.1016/j.mattod.2020.11.023.
72. B. Gupta, A.K. Gupta, C.S. Tiwary, P.S. Ghosal, A multivariate modeling and experimental realization of photocatalytic system of engineered S–C3N4/ZnO hybrid for ciprofloxacin removal: Influencing factors and degradation pathways, Environ. Res. 196 (2021) 110390. https://doi.org/10.1016/j.envres.2020.110390.
73. S. Siddique, C.C. Gowda, R. Tromer, S. Demiss, A.R.S. Gautam, O.E. Femi, P. Kumbhakar, D.S. Galvao, A. Chandra, C.S. Tiwary, Scalable Synthesis of Atomically Thin Gallium Telluride Nanosheets for Supercapacitor Applications, ACS Appl. Nano Mater. 4 (2021) 4829–4838. https://doi.org/10.1021/acsanm.1c00428
74. S.K. Kuila, D.K. Gorai, B. Gupta, A.K. Gupta, C.S. Tiwary, T.K. Kundu, Lanthanum ions decorated 2-dimensional g-C3N4 for ciprofloxacin photodegradation, Chemosphere. (2020) 128780. https://doi.org/10.1016/j.chemosphere.2020.128780.
75. P. Kumbhakar, M. Mukherjee, A. Pramanik, S. Karmakar, A.K. Singh, C.S. Tiwary, P. Kumbhakar, Confinement Aided Simultanous Water Cleaning and Energy Harvesting Using Atomically Thin Wurtzite (Wurtzene), Adv. Sustain. Syst. 5 (2021) 2000189. https://doi.org/10.1002/adsu.202000189.
76. I. Das Jana, P. Kumbhakar, S. Banerjee, C.C. Gowda, N. Kedia, S.K. Kuila, S. Banerjee, N.C. Das, A.K. Das, I. Manna, C.S. Tiwary, A. Mondal, Copper Nanoparticle-Graphene Composite-Based Transparent Surface Coating with Antiviral Activity against Influenza Virus, ACS Appl. Nano Mater. 4 (2021) 352–362. https://doi.org/10.1021/acsanm.0c02713.
77. R. Mahle, P. Kumbhakar, D. Nayar, T.N. Narayanan, K. Kumar Sadasivuni, C.S. Tiwary, R. Banerjee, Current advances in bio-fabricated quantum dots emphasising the study of mechanisms to diversify their catalytic and biomedical applications, Dalt. Trans. 50 (2021) 14062–14080. https://doi.org/10.1039/d1dt01529j.
78. R. Mahle, D. Mandal, P. Kumbhakar, A. Chandra, C.S. Tiwary, R. Banerjee, A study of microbially fabricated bio-conjugated quantum dots for pico-molar sensing of H2O2and glucose, Biomater. Sci. 9 (2021) 157–166. https://doi.org/10.1039/d0bm01206h.
79. P. Kumbhakar, C. Chowde Gowda, C.S. Tiwary, Advance Optical Properties and Emerging Applications of 2D Materials, Front. Mater. 8 (2021). https://doi.org/10.3389/fmats.2021.721514.
80. P.S. Owuor, A. Khan, C.L. y Leon, S. Ozden, R. Priestley, C. Arnold, N. Chopra, C.S. Tiwary, Roadblocks faced by graphene in replacing graphite in large-scale applications, Oxford Open Mater. Sci. 1 (2020). https://doi.org/10.1093/oxfmat/itab004.
81. P. Kumbhakar, A. Roy Karmakar, G.P. Das, J. Chakraborty, C.S. Tiwary, P. Kumbhakar, Reversible temperature-dependent photoluminescence in semiconductor quantum dots for the development of a smartphone-based optical thermometer, Nanoscale. 13 (2021) 2946–2954. <https://doi.org/10.1039/d0nr07874c>.
82. S. Karmakar, R. Sarkar, C.S. Tiwary, P. Kumbhakar, Synthesis of bilayer MoS2 nanosheets by green chemistry approach and its application in triboelectric and catalytic energy harvesting, J. Alloys Compd. 844 (2020) 155690. https://doi.org/10.1016/j.jallcom.2020.155690.
83. A.B. Puthirath, S.N. Shirodkar, G. Gao, F.C.R. Hernandez, L. Deng, R. Dahal, A. Apte, G. Costin, N. Chakingal, A.P. Balan, L.M. Sassi, C.S. Tiwary, R. Vajtai, C.W. Chu, B.I. Yakobson, P.M. Ajayan, Scale-Enhanced Magnetism in Exfoliated Atomically Thin Magnetite Sheets, Small. 16 (2020) 2004208. https://doi.org/10.1002/smll.202004208.
84. J. Joyner, B. Javvaji, P.S. Owuor, P. Raghavan, D. Salpekar, T. Tsafack, S. Bhowmick, R. Vajtai, D.R. Mahapatra, C.S. Tiwary, P.M. Ajayan, Shear exfoliation synthesis of large-scale graphene-reinforced nanofibers, Carbon N. Y. 166 (2020) 405–413. https://doi.org/10.1016/j.carbon.2020.05.009.
85. R.S. Ambekar, A. Deshmukh, M.Y. Suárez-Villagrán, R. Das, V. Pal, S. Dey, J.H. Miller, L.D. Machado, P. Kumbhakar, C.S. Tiwary, 2D Hexagonal Boron Nitride-Coated Cotton Fabric with Self-Extinguishing Property, ACS Appl. Mater. Interfaces. 12 (2020) 45274–45280. https://doi.org/10.1021/acsami.0c12647.
86. S.K. Kuila, R. Sarkar, P. Kumbhakar, P. Kumbhakar, C.S. Tiwary, T.K. Kundu, Photocatalytic dye degradation under sunlight irradiation using cerium ion adsorbed two-dimensional graphitic carbon nitride, J. Environ. Chem. Eng. 8 (2020) 103942. https://doi.org/10.1016/j.jece.2020.103942.
87. T.P. Yadav, C.F. Woellner, T. Sharifi, S.K. Sinha, L.L. Qu, A. Apte, N.K. Mukhopadhyay, O.N. Srivastava, R. Vajtai, D.S. Galvão, C.S. Tiwary, P.M. Ajayan, Extraction of Two-Dimensional Aluminum Alloys from Decagonal Quasicrystals, ACS Nano. 14 (2020) 7435–7443. https://doi.org/10.1021/acsnano.0c03081.
88. L. Sharma, T. Botari, C.S. Tiwary, A. Halder, Hydrogen Evolution at the in Situ MoO3/MoS2Heterojunctions Created by Nonthermal O2Plasma Treatment, ACS Appl. Energy Mater. 3 (2020) 5333–5342. https://doi.org/10.1021/acsaem.0c00369.
89. G. Zhan, J. Zhang, Y. Wang, C. Yu, J. Wu, J. Cui, X. Shu, Y. Qin, H. Zheng, J. Sun, J. Yan, Y. Zhang, C.S. Tiwary, Y. Wu, MoS2 quantum dots decorated ultrathin NiO nanosheets for overall water splitting, J. Colloid Interface Sci. 566 (2020) 411–418. https://doi.org/10.1016/j.jcis.2020.01.109.
90. B. Gupta, A.K. Gupta, P.S. Ghosal, C.S. Tiwary, Photo-induced degradation of bio-toxic Ciprofloxacin using the porous 3D hybrid architecture of an atomically thin sulfur-doped g-C3N4/ZnO nanosheet, Environ. Res. (2020) 109154. https://doi.org/10.1016/j.envres.2020.109154.
91. J. Zhang, T. Zhu, Y. Wang, J. Cui, J. Sun, J. Yan, Y. Qin, X. Shu, Y. Zhang, J. Wu, C.S. Tiwary, P.M. Ajayan, Y. Wu, Self-assembly of 0D/2D homostructure for enhanced hydrogen evolution, Mater. Today. 36 (2020) 83–90. https://doi.org/10.1016/j.mattod.2020.02.006.
92. J. Joyner, E.F. Oliveira, H. Yamaguchi, K. Kato, S. Vinod, D.S. Galvao, D. Salpekar, S. Roy, U. Martinez, C.S. Tiwary, S. Ozden, P.M. Ajayan, Graphene Supported MoS2 Structures with High Defect Density for an Efficient HER Electrocatalysts, ACS Appl. Mater. Interfaces. 12 (2020) 12629–12638. https://doi.org/10.1021/acsami.9b17713.
93. A. Pramanik, S. Biswas, C.S. Tiwary, P. Kumbhakar, R. Sarkar, P. Kumbhakar, Forster resonance energy transfer assisted white light generation and luminescence tuning in a colloidal graphene quantum dot-dye system, J. Colloid Interface Sci. 565 (2020) 326–336. <https://doi.org/10.1016/j.jcis.2020.01.019>.
94. S.P. Narayanan, P. Thakur, A.P. Balan, A.A. Abraham, F. Mathew, M. Yeddala, T. Subair, C. Tiwary, S. Thomas, T.N. Narayanan, P.M. Ajayan, M.M.R. Anantharaman, Two-Dimensional Amorphous Cr2O3 Modified Metallic Electrodes for Hydrogen Evolution Reaction, Phys. Status Solidi - Rapid Res. Lett. 13 (2019) 1900025. https://doi.org/10.1002/pssr.201900025.
95. A. Apte, A. Krishnamoorthy, J.A. Hachtel, S. Susarla, J. Yoon, L.M. Sassi, P. Bharadwaj, J.M. Tour, J.C. Idrobo, R.K. Kalia, A. Nakano, P. Vashishta, C.S. Tiwary, P.M. Ajayan, Two-Dimensional Lateral Epitaxy of 2H (MoSe2)-1T′ (ReSe2) Phases, Nano Lett. 19 (2019) 6338–6345. https://doi.org/10.1021/acs.nanolett.9b02476.
96. A. Krishnamoorthy, M.F. Lin, X. Zhang, C. Weninger, R. Ma, A. Britz, C.S. Tiwary, V. Kochat, A. Apte, J. Yang, S. Park, R. Li, X. Shen, X. Wang, R. Kalia, A. Nakano, F. Shimojo, D. Fritz, U. Bergmann, P. Ajayan, P. Vashishta, Optical Control of Non-Equilibrium Phonon Dynamics, Nano Lett. 19 (2019) 4981–4989. https://doi.org/10.1021/acs.nanolett.9b01179.
97. S. Susarla, T. Tsafack, P.S. Owuor, A.B. Puthirath, J.A. Hachtel, G. Babu, A. Apte, B.M.I. Jawdat, M.S. Hilario, A. Lerma, H.A. Calderon, F.C.R. Hernandez, D.W. Tam, T. Li, A.R. Lupini, J.C. Idrobo, J. Lou, B. Wei, P. Dai, C.S. Tiwary, P.M. Ajayan, High-K dielectric sulfur-selenium alloys, Sci. Adv. 5 (2019) eaau9785. https://doi.org/10.1126/sciadv.aau9785.
98. N. Sethulakshmi, A. Mishra, P.M. Ajayan, Y. Kawazoe, A.K. Roy, A.K. Singh, C.S. Tiwary, Magnetism in two-dimensional materials beyond graphene, Mater. Today. 27 (2019) 107–122. https://doi.org/10.1016/j.mattod.2019.03.015.
99. K. Zhao, T. Zhang, H. Chang, Y. Yang, P. Xiao, H. Zhang, C. Li, C.S. Tiwary, P.M. Ajayan, Y. Chen, Super-elasticity of three-dimensionally cross-linked graphene materials all the way to deep cryogenic temperatures, Sci. Adv. 5 (2019) eaav2589. https://doi.org/10.1126/sciadv.aav2589.
100. X. Zhang, Z. Jin, L. Wang, J.A. Hachtel, E. Villarreal, Z. Wang, T. Ha, Y. Nakanishi, C.S. Tiwary, J. Lai, L. Dong, J. Yang, R. Vajtai, E. Ringe, J.C. Idrobo, B.I. Yakobson, J. Lou, V. Gambin, R. Koltun, P.M. Ajayan, Low Contact Barrier in 2H/1T′ MoTe 2 In-Plane Heterostructure Synthesized by Chemical Vapor Deposition, ACS Appl. Mater. Interfaces. 11 (2019) 12777–12785. https://doi.org/10.1021/acsami.9b00306.
101. S. Susarla, P. Manimunda, Y.M. Jaques, J.A. Hachtel, J.C. Idrobo, S.A.S. Asif, D.S. Galvão, C.S. Tiwary, P.M. Ajayan, Strain-Induced Structural Deformation Study of 2D Mo x W (1-x) S 2, Adv. Mater. Interfaces. 6 (2019) 1801262. https://doi.org/10.1002/admi.201801262.
102. S. Radhakrishnan, J.H. Park, R. Neupane, C.A. de los Reyes, P.M. Sudeep, M. Paulose, A.A. Martí, C.S. Tiwary, V.N. Khabashesku, O.K. Varghese, B.A. Kaipparettu, P.M. Ajayan, Fluorinated Boron Nitride Quantum Dots: A New 0D Material for Energy Conversion and Detection of Cellular Metabolism, Part. Part. Syst. Charact. 36 (2019) 1800346. https://doi.org/10.1002/ppsc.201800346.
103. S. Ozden, S. Bawari, S. Vinod, U. Martinez, S. Susarla, C. Narvaez, J. Joyner, C.S. Tiwary, T.N. Narayanan, P.M. Ajayan, Interface and defect engineering of hybrid nanostructures toward an efficient HER catalyst, Nanoscale. 11 (2019) 12489–12496. https://doi.org/10.1039/c9nr01321k.
104. P. Kumbhakar, S. Biswas, P. Pandey, C.S. Tiwary, P. Kumbhakar, Tailoring of structural and photoluminescence emissions by Mn and Cu co-doping in 2D nanostructures of ZnS for the visualization of latent fingerprints and generation of white light, Nanoscale. 11 (2019) 2017–2026. https://doi.org/10.1039/c8nr09074b.
105. Z. Wang, X. Zhang, J.A. Hachtel, A. Apte, C.S. Tiwary, R. Vajtai, J.C. Idrobo, R. Ozturk, P. Ajayan, Etching of transition metal dichalcogenide monolayers into nanoribbon arrays, Nanoscale Horizons. 4 (2019) 689–696. https://doi.org/10.1039/c8nh00364e.
106. T. Sharifi, Y. Xie, X. Zhang, H.R. Barzegar, J. Lei, G. Coulter, S. Sun, C. Tiwary, A. Zettl, B. Yakobson, P.M. Ajayan, Graphene as an electrochemical transfer layer, Carbon N. Y. 141 (2019) 266–273. <https://doi.org/10.1016/j.carbon.2018.09.056>.
107. A. Pramanik, S. Biswas, C.S. Tiwary, R. Sarkar, P. Kumbhakar, Colloidal N-Doped Graphene Quantum Dots with Tailored Luminescent Downshifting and Detection of UVA Radiation with Enhanced Responsivity, ACS Omega. 3 (2018) 16260–16270. https://doi.org/10.1021/acsomega.8b02473.
108. A. Apte, E. Bianco, A. Krishnamoorthy, S. Yazdi, R. Rao, N. Glavin, H. Kumazoe, V. Varshney, A. Roy, F. Shimojo, E. Ringe, R.K. Kalia, A. Nakano, C.S. Tiwary, P. Vashishta, V. Kochat, P.M. Ajayan, Polytypism in ultrathin tellurium, 2D Mater. 6 (2019) 015013. https://doi.org/10.1088/2053-1583/aae7f6.
109. S. Susarla, J.A. Hachtel, X. Yang, A. Kutana, A. Apte, Z. Jin, R. Vajtai, J.C. Idrobo, J. Lou, B.I. Yakobson, C.S. Tiwary, P.M. Ajayan, Quaternary Alloys: Thermally Induced 2D Alloy-Heterostructure Transformation in Quaternary Alloys (Adv. Mater. 45/2018), Adv. Mater. 30 (2018) 1870344. https://doi.org/10.1002/adma.201870344.
110. S. Radhakrishnan, D. Das, L. Deng, P.M. Sudeep, G. Colas, C.A. de los Reyes, S. Yazdi, C.W. Chu, A.A. Martí, C.S. Tiwary, T. Filleter, A.K. Singh, P.M. Ajayan, An Insight into the Phase Transformation of WS2 upon Fluorination, Adv. Mater. 30 (2018) 1803366. https://doi.org/10.1002/adma.201803366.
111. S. Susarla, J.A. Hachtel, X. Yang, A. Kutana, A. Apte, Z. Jin, R. Vajtai, J.C. Idrobo, J. Lou, B.I. Yakobson, C.S. Tiwary, P.M. Ajayan, Thermally Induced 2D Alloy-Heterostructure Transformation in Quaternary Alloys, Adv. Mater. 30 (2018) 1804218. https://doi.org/10.1002/adma.201804218.
112. A. Puthirath Balan, S. Radhakrishnan, R. Neupane, S. Yazdi, L. Deng, C.A. De Los Reyes, A. Apte, A.B. Puthirath, B.M. Rao, M. Paulose, R. Vajtai, C.W. Chu, A.A. Martí, O.K. Varghese, C.S. Tiwary, M.R. Anantharaman, P.M. Ajayan, Magnetic Properties and Photocatalytic Applications of 2D Sheets of Nonlayered Manganese Telluride by Liquid Exfoliation, ACS Appl. Nano Mater. 1 (2018) 6427–6434. https://doi.org/10.1021/acsanm.8b01642.
113. P.S. Owuor, T. Tsafack, S. Schara, H.Y. Hwang, S. Jung, R. V. Salvatierra, T. Li, S. Susarla, M. Ren, B. Wei, R. Vajtai, J.M. Tour, J. Lou, C.S. Tiwary, P.M. Ajayan, Achieving Self-Stiffening and Laser Healing by Interconnecting Graphene Oxide Sheets with Amine-Functionalized Ovalbumin, Adv. Mater. Interfaces. 5 (2018) 1800932. https://doi.org/10.1002/admi.201800932.
114. T.P. Yadav, S.N. Shirodkar, N. Lertcumfu, S. Radhakrishnan, F.N. Sayed, K.D. Malviya, G. Costin, R. Vajtai, B.I. Yakobson, C.S. Tiwary, P.M. Ajayan, Chromiteen: A New 2D Oxide Magnetic Material from Natural Ore, Adv. Mater. Interfaces. 5 (2018) 1800549. https://doi.org/10.1002/admi.201800549.
115. A. Apte, A. Krishnamoorthy, J.A. Hachtel, S. Susarla, J.C. Idrobo, A. Nakano, R.K. Kalia, P. Vashishta, C.S. Tiwary, P.M. Ajayan, Telluride-Based Atomically Thin Layers of Ternary Two-Dimensional Transition Metal Dichalcogenide Alloys, Chem. Mater. 30 (2018) 7262–7268. https://doi.org/10.1021/acs.chemmater.8b03444.
116. A. Puthirath Balan, S. Radhakrishnan, R. Kumar, R. Neupane, S.K. Sinha, L. Deng, C.A. De Los Reyes, A. Apte, B.M. Rao, M. Paulose, R. Vajtai, C.W. Chu, G. Costin, A.A. Martí, O.K. Varghese, A.K. Singh, C.S. Tiwary, M.R. Anantharaman, P.M. Ajayan, A Non-van der Waals Two-Dimensional Material from Natural Titanium Mineral Ore Ilmenite, Chem. Mater. 30 (2018) 5923–5931. https://doi.org/10.1021/acs.chemmater.8b01935.
117. T. Sharifi, S. Yazdi, G. Costin, A. Apte, G. Coulter, C. Tiwary, P.M. Ajayan, Impurity-Controlled Crystal Growth in Low-Dimensional Bismuth Telluride, Chem. Mater. 30 (2018) 6108–6115. https://doi.org/10.1021/acs.chemmater.8b02548.
118. M. Bala Murali Krishna, J. Madéo, J.P. Urquizo, X. Zhu, S. Vinod, C.S. Tiwary, P.M. Ajayan, K.M. Dani, Terahertz photoconductivity and photocarrier dynamics in few-layer hBN/WS2 van der Waals heterostructure laminates, Semicond. Sci. Technol. 33 (2018) 084001. https://doi.org/10.1088/1361-6641/aacc3b.
119. A. Puthirath Balan, S. Radhakrishnan, C.F. Woellner, S.K. Sinha, L. Deng, C.D.L. Reyes, B.M. Rao, M. Paulose, R. Neupane, A. Apte, V. Kochat, R. Vajtai, A.R. Harutyunyan, C.W. Chu, G. Costin, D.S. Galvao, A.A. Martí, P.A. Van Aken, O.K. Varghese, C.S. Tiwary, A. Malie Madom Ramaswamy Iyer, P.M. Ajayan, Exfoliation of a non-van der Waals material from iron ore hematite, Nat. Nanotechnol. 13 (2018) 602–609. https://doi.org/10.1038/s41565-018-0134-y.
120. C. Gautam, D. Chakravarty, A. Gautam, C.S. Tiwary, C.F. Woellner, V.K. Mishra, N. Ahmad, S. Ozden, S. Jose, S. Biradar, R. Vajtai, R. Trivedi, D.S. Galvao, P.M. Ajayan, Synthesis and 3D Interconnected Nanostructured h-BN-Based Biocomposites by Low-Temperature Plasma Sintering: Bone Regeneration Applications, ACS Omega. 3 (2018) 6013–6021. https://doi.org/10.1021/acsomega.8b00707.
121. T.P. Yadav, C.F. Woellner, S.K. Sinha, T. Sharifi, A. Apte, N.K. Mukhopadhyay, O.N. Srivastava, R. Vajtai, D.S. Galvao, C.S. Tiwary, P.M. Ajayan, Liquid Exfoliation of Icosahedral Quasicrystals, Adv. Funct. Mater. 28 (2018) 1801181. https://doi.org/10.1002/adfm.201801181.
122. H. Ribeiro, J.P.C. Trigueiro, P.S. Owuor, L.D. Machado, C.F. Woellner, J.J. Pedrotti, Y.M. Jaques, S. Kosolwattana, A. Chipara, W.M. Silva, C.J.R. Silva, D.S. Galvão, N. Chopra, I.N. Odeh, C.S. Tiwary, G.G. Silva, P.M. Ajayan, Hybrid 2D nanostructures for mechanical reinforcement and thermal conductivity enhancement in polymer composites, Compos. Sci. Technol. 159 (2018) 103–110. https://doi.org/10.1016/j.compscitech.2018.01.032.
123. S. Susarla, P. Manimunda, Y. Morais Jaques, J.A. Hachtel, J.C. Idrobo, S.A. Syed Amnulla, D.S. Galvão, C.S. Tiwary, P.M. Ajayan, Deformation Mechanisms of Vertically Stacked WS2 /MoS2 Heterostructures: The Role of Interfaces, ACS Nano. 12 (2018) 4036–4044. https://doi.org/10.1021/acsnano.8b01786.
124. V. Kochat, A. Samanta, Y. Zhang, S. Bhowmick, P. Manimunda, S.A.S. Asif, A.S. Stender, R. Vajtai, A.K. Singh, C.S. Tiwary, P.M. Ajayan, Atomically thin gallium layers from solid-melt exfoliation, Sci. Adv. 4 (2018) e1701373. https://doi.org/10.1126/sciadv.1701373.
125. A. Apte, V. Kochat, P. Rajak, A. Krishnamoorthy, P. Manimunda, J.A. Hachtel, J.C. Idrobo, S.A. Syed Amanulla, P. Vashishta, A. Nakano, R.K. Kalia, C.S. Tiwary, P.M. Ajayan, Structural Phase Transformation in Strained Monolayer MoWSe2 Alloy, ACS Nano. 12 (2018) 3468–3476. https://doi.org/10.1021/acsnano.8b00248.
126. P. V. Sarma, C.S. Tiwary, S. Radhakrishnan, P.M. Ajayan, M.M. Shaijumon, Oxygen incorporated WS2 nanoclusters with superior electrocatalytic properties for hydrogen evolution reaction, Nanoscale. 10 (2018) 9516–9524. https://doi.org/10.1039/c8nr00253c.
127. C.F. Woellner, P.S. Owuor, T. Li, S. Vinod, S. Ozden, S. Kosolwattana, S. Bhowmick, L.X. Duy, R. V. Salvatierra, B. Wei, S.A.S. Amanulla, J.M. Tour, R. Vajtai, J. Lou, D.S. Galvão, C.S. Tiwary, P.M. Ajayan, Mechanical properties of ultralow density graphene oxide/polydimethylsiloxane foams, MRS Adv. 3 (2018) 61–66. https://doi.org/10.1557/adv.2018.49.
128. Y.M. Jaques, P. Manimunda, Y. Nakanishi, S. Susarla, C.F. Woellner, S. Bhowmick, S.A.S. Asif, D.S. Galvão, C.S. Tiwary, P.M. Ajayan, Differences in the Mechanical Properties of Monolayer and Multilayer WSe2/MoSe2, MRS Adv. 3 (2018) 373–378. https://doi.org/10.1557/adv.2018.246.
129. K. Hsieh, S. Ghatak, V. Kochat, X. Zhang, Y. Gong, C.S. Tiwary, S. Kaushal, P.M. Ajayan, A. Ghosh, Anomalous Number Fluctuation Noise in Localized Transition Metal Dichalcogenide Layers: Generalization of McWhorter’s Mechanism, MRS Adv. 3 (2018) 299–305. https://doi.org/10.1557/adv.2018.63.
130. S. Vinod, C.S. Tiwary, A. Samanta, S. Ozden, T.N. Narayanan, R. Vajtai, V. Agarwal, A.K. Singh, G. John, P.M. Ajayan, Graphene Oxide Epoxy (GO-xy): GO as Epoxy Adhesive by Interfacial Reaction of Functionalities, Adv. Mater. Interfaces. 5 (2018) 1700657. <https://doi.org/10.1002/admi.201700657>.
131. T. Sharifi, X. Zhang, G. Costin, S. Yazdi, C.F. Woellner, Y. Liu, C.S. Tiwary, P. Ajayan, Thermoelectricity Enhanced Electrocatalysis, Nano Lett. 17 (2017) 7908–7913. https://doi.org/10.1021/acs.nanolett.7b04244.
132. Y. Wang, Y. Liu, J. Zhang, J. Wu, H. Xu, X. Wen, X. Zhang, C.S. Tiwary, W. Yang, R. Vajtai, Y. Zhang, N. Chopra, I.N. Odeh, Y. Wu, P.M. Ajayan, Cryo-mediated exfoliation and fracturing of layered materials into 2D quantum dots, Sci. Adv. 3 (2017) e1701500. https://doi.org/10.1126/sciadv.1701500.
133. M.F. Lin, V. Kochat, A. Krishnamoorthy, L. Bassman, C. Weninger, Q. Zheng, X. Zhang, A. Apte, C.S. Tiwary, X. Shen, R. Li, R. Kalia, P. Ajayan, A. Nakano, P. Vashishta, F. Shimojo, X. Wang, D.M. Fritz, U. Bergmann, Ultrafast non-radiative dynamics of atomically thin MoSe2, Nat. Commun. 8 (2017) 1745. https://doi.org/10.1038/s41467-017-01844-2.
134. S. Radhakrishnan, P.M. Sudeep, J.H. Park, C.F. Woellner, K. Maladonado, D.S. Galvao, B.A. Kaipparettu, C.S. Tiwary, P.M. Ajayan, Multifunctional Hybrids Based on 2D Fluorinated Graphene Oxide and Superparamagnetic Iron Oxide Nanoparticles, Part. Part. Syst. Charact. 34 (2017) 1700245. https://doi.org/10.1002/ppsc.201700245.
135. V. Kochat, A. Apte, J.A. Hachtel, H. Kumazoe, A. Krishnamoorthy, S. Susarla, J.C. Idrobo, F. Shimojo, P. Vashishta, R. Kalia, A. Nakano, C.S. Tiwary, P.M. Ajayan, Re Doping in 2D Transition Metal Dichalcogenides as a New Route to Tailor Structural Phases and Induced Magnetism, Adv. Mater. 29 (2017) 1703754. https://doi.org/10.1002/adma.201703754.
136. P.S. Owuor, O.K. Park, C.F. Woellner, A.S. Jalilov, S. Susarla, J. Joyner, S. Ozden, L. Duy, R.V. Salvatierra, R. Vajtai, J.M. Tour, J. Lou, D.S. Galvão, C.S. Tiwary, P.M. Ajayan, Lightweight Hexagonal Boron Nitride Foam for CO2 Absorption, ACS Nano. 11 (2017) 8944–8952. https://doi.org/10.1021/acsnano.7b03291.
137. H. Ribeiro, J.P.C. Trigueiro, W.M. Silva, C.F. Woellner, P.S. Owuor, A. Cristian Chipara, M.C. Lopes, C.S. Tiwary, J.J. Pedrotti, R. Villegas Salvatierra, J.M. Tour, N. Chopra, I.N. Odeh, G.G. Silva, P.M. Ajayan, Hybrid MoS2/h-BN Nanofillers As Synergic Heat Dissipation and Reinforcement Additives in Epoxy Nanocomposites, ACS Appl. Mater. Interfaces. 11 (2019) 24485–24492. https://doi.org/10.1021/acsami.7b09945.
138. K. Hsieh, V. Kochat, X. Zhang, Y. Gong, C.S. Tiwary, P.M. Ajayan, A. Ghosh, Effect of Carrier Localization on Electrical Transport and Noise at Individual Grain Boundaries in Monolayer MoS2, Nano Lett. 17 (2017) 5452–5457. https://doi.org/10.1021/acs.nanolett.7b02099.
139. S. Susarla, V. Kochat, A. Kutana, J.A. Hachtel, J.C. Idrobo, R. Vajtai, B.I. Yakobson, C.S. Tiwary, P.M. Ajayan, Phase Segregation Behavior of Two-Dimensional Transition Metal Dichalcogenide Binary Alloys Induced by Dissimilar Substitution, Chem. Mater. 29 (2017) 7431–7439. https://doi.org/10.1021/acs.chemmater.7b02407.
140. S. Susarla, A. Kutana, J.A. Hachtel, V. Kochat, A. Apte, R. Vajtai, J.C. Idrobo, B.I. Yakobson, C.S. Tiwary, P.M. Ajayan, Quaternary 2D Transition Metal Dichalcogenides (TMDs) with Tunable Bandgap, Adv. Mater. 29 (2017) 1702457. https://doi.org/10.1002/adma.201702457.
141. P. Manimunda, Y. Nakanishi, Y.M. Jaques, S. Susarla, C.F. Woellner, S. Bhowmick, S.A.S. Asif, D.S. Galvão, C.S. Tiwary, P.M. Ajayan, Nanoscale deformation and friction characteristics of atomically thin WSe2 and heterostructure using nanoscratch and Raman spectroscopy, 2D Mater. 4 (2017) 045005. https://doi.org/10.1088/2053-1583/aa8475.
142. Z. Wang, V. Kochat, P. Pandey, S. Kashyap, S. Chattopadhyay, A. Samanta, S. Sarkar, P. Manimunda, X. Zhang, S. Asif, A.K. Singh, K. Chattopadhyay, C.S. Tiwary, P.M. Ajayan, Metal Immiscibility Route to Synthesis of Ultrathin Carbides, Borides, and Nitrides, Adv. Mater. 29 (2017) 1700364. https://doi.org/10.1002/adma.201700364.
143. J.A. Hachtel, S. Susarla, V. Kochat, C. Tiwary, P. Ajayan, J. Carlos Idrobo, Directly Identifying Phase Segregation in 2D Quaternary Alloys, Microsc. Microanal. 23 (2017) 1438–1439. https://doi.org/10.1017/s1431927617007851.
144. S. Radhakrishnan, D. Das, A. Samanta, C.A. De Los Reyes, L. Deng, L.B. Alemany, T.K. Weldeghiorghis, V.N. Khabashesku, V. Kochat, Z. Jin, P.M. Sudeep, A.A. Martí, C.W. Chu, A. Roy, C.S. Tiwary, A.K. Singh, P.M. Ajayan, Fluorinated h-BN As a magnetic semiconductor, Sci. Adv. 3 (2017) e1700842. https://doi.org/10.1126/sciadv.1700842.
145. P.S. Owuor, C.F. Woellner, T. Li, S. Vinod, S. Ozden, S. Kosolwattana, S. Bhowmick, L.X. Duy, R. V. Salvatierra, B. Wei, S.A.S. Asif, J.M. Tour, R. Vajtai, J. Lou, D.S. Galvão, C.S. Tiwary, P.M. Ajayan, High Toughness in Ultralow Density Graphene Oxide Foam, Adv. Mater. Interfaces. 4 (2017) 1700030. https://doi.org/10.1002/admi.201700030.
146. M. Michel, C. Biswas, C.S. Tiwary, G.A. Saenz, R.F. Hossain, P. Ajayan, A.B. Kaul, A thermally-invariant, additively manufactured, high-power graphene resistor for flexible electronics, 2D Mater. 4 (2017) 025076. https://doi.org/10.1088/2053-1583/aa66ff.
147. S. Biswas, C.S. Tiwary, S. Vinod, A.K. Kole, U. Chatterjee, P. Kumbhakar, P.M. Ajayan, Nonlinear Optical Properties and Temperature Dependent Photoluminescence in hBN-GO Heterostructure 2D Material, J. Phys. Chem. C. 121 (2017) 8060–8069. https://doi.org/10.1021/acs.jpcc.6b12834.
148. H. Huang, L. Ma, C.S. Tiwary, Q. Jiang, K. Yin, W. Zhou, P.M. Ajayan, Worm-Shape Pt Nanocrystals Grown on Nitrogen-Doped Low-Defect Graphene Sheets: Highly Efficient Electrocatalysts for Methanol Oxidation Reaction, Small. 13 (2017) 1603013. https://doi.org/10.1002/smll.201603013.
149. J. Wu, L. Ma, A. Samanta, M. Liu, B. Li, Y. Yang, J. Yuan, J. Zhang, Y. Gong, J. Lou, R. Vajtai, B. Yakobson, A.K. Singh, C.S. Tiwary, P.M. Ajayan, Growth of Molybdenum Carbide–Graphene Hybrids from Molybdenum Disulfide Atomic Layer Template, Adv. Mater. Interfaces. 4 (2017) 1600866. https://doi.org/10.1002/admi.201600866.
150. O.K. Park, C.S. Tiwary, Y. Yang, S. Bhowmick, S. Vinod, Q. Zhang, V.L. Colvin, S.A.S. Asif, R. Vajtai, E.S. Penev, B.I. Yakobson, P.M. Ajayan, Magnetic field controlled graphene oxide-based origami with enhanced surface area and mechanical properties, Nanoscale. 9 (2017) 6991–6997. https://doi.org/10.1039/c7nr01054k.
151. A.P.P. Alves, R. Koizumi, A. Samanta, L.D. Machado, A.K. Singh, D.S. Galvao, G.G. Silva, C.S. Tiwary, P.M. Ajayan, One-step electrodeposited 3D-ternary composite of zirconia nanoparticles, rGO and polypyrrole with enhanced supercapacitor performance, Nano Energy. 31 (2017) 225–232. https://doi.org/10.1016/j.nanoen.2016.11.018.
152. S. Radhakrishnan, A. Samanta, P.M. Sudeep, K.L. Maldonado, S.A. Mani, G. Acharya, C.S. Tiwary, A.K. Singh, P.M. Ajayan, Metal-Free Dual Modal Contrast Agents Based on Fluorographene Quantum Dots, Part. Part. Syst. Charact. 34 (2017) 1600221. https://doi.org/10.1002/ppsc.201600221.
153. S. Vandana, V. Kochat, J. Lee, V. Varshney, S. Yazdi, J. Shen, S. Kosolwattana, S. Vinod, R. Vajtai, A.K. Roy, C.S. Tiwary, P.M. Ajayan, 2D Heterostructure coatings of hBN-MoS2 layers for corrosion resistance, J. Phys. D. Appl. Phys. 50 (2017) 045301. <https://doi.org/10.1088/1361-6463/aa5001>.
154. D. Chakravarty, C.S. Tiwary, C.F. Woellner, S. Radhakrishnan, S. Vinod, S. Ozden, P.A. da Silva Autreto, S. Bhowmick, S. Asif, S.A. Mani, D.S. Galvao, P.M. Ajayan, 3D Porous Graphene by Low-Temperature Plasma Welding for Bone Implants, Adv. Mater. 28 (2016) 8959–8967. https://doi.org/10.1002/adma.201603146.
155. X. Zhang, J. Zhu, C.S. Tiwary, Z. Ma, H. Huang, J. Zhang, Z. Lu, W. Huang, Y. Wu, Palladium Nanoparticles Supported on Nitrogen and Sulfur Dual-Doped Graphene as Highly Active Electrocatalysts for Formic Acid and Methanol Oxidation, ACS Appl. Mater. Interfaces. 8 (2016) 10858–10865. https://doi.org/10.1021/acsami.6b01580.
156. H. Huang, J. Zhu, W. Zhang, C.S. Tiwary, J. Zhang, X. Zhang, Q. Jiang, H. He, Y. Wu, W. Huang, P.M. Ajayan, Q. Yan, Controllable Codoping of Nitrogen and Sulfur in Graphene for Highly Efficient Li-Oxygen Batteries and Direct Methanol Fuel Cells, Chem. Mater. 28 (2016) 1737–1745. https://doi.org/10.1021/acs.chemmater.5b04654.
157. S. Vinod, C.S. Tiwary, L.D. Machado, S. Ozden, J. Cho, P. Shaw, R. Vajtai, D.S. Galvão, P.M. Ajayan, Strain Rate Dependent Shear Plasticity in Graphite Oxide, Nano Lett. 16 (2016) 1127–1131. https://doi.org/10.1021/acs.nanolett.5b04346.
158. V. Kochat, C.S. Tiwary, T. Biswas, G. Ramalingam, K. Hsieh, K. Chattopadhyay, S. Raghavan, M. Jain, A. Ghosh, Magnitude and Origin of Electrical Noise at Individual Grain Boundaries in Graphene, Nano Lett. 16 (2016) 562–567. https://doi.org/10.1021/acs.nanolett.5b04234.
159. A. Pramanik, S. Biswas, A.K. Kole, C.S. Tiwary, R.N. Krishnaraj, P. Kumbhakar, Template-free hydrothermal synthesis of amphibious fluorescent carbon nanorice towards anti-counterfeiting applications and unleashing its nonlinear optical properties, RSC Adv. 6 (2016) 99060–99071. https://doi.org/10.1039/c6ra20442b.
160. S.P. Jose, C.S. Tiwary, S. Kosolwattana, P. Raghavan, L.D. Machado, C. Gautam, T. Prasankumar, J. Joyner, S. Ozden, D.S. Galvao, P.M. Ajayan, Enhanced supercapacitor performance of a 3D architecture tailored using atomically thin rGO-MoS2 2D sheets, RSC Adv. 6 (2016) 93384–93393. https://doi.org/10.1039/c6ra20960b.
161. C. Gautam, C.S. Tiwary, L.D. Machado, S. Jose, S. Ozden, S. Biradar, D.S. Galvao, R.K. Sonker, B.C. Yadav, R. Vajtai, P.M. Ajayan, Synthesis and porous h-BN 3D architectures for effective humidity and gas sensors, RSC Adv. 6 (2016) 87888–87896. https://doi.org/10.1039/c6ra18833h.
162. L.D. MacHado, S. Ozden, C. Tiwary, P.A.S. Autreto, R. Vajtai, E. V. Barrera, D.S. Galvao, P.M. Ajayan, The structural and dynamical aspects of boron nitride nanotubes under high velocity impacts, Phys. Chem. Chem. Phys. 18 (2016) 14776–14781. https://doi.org/10.1039/c6cp01949h.
163. S. Biswas, A.K. Kole, C.S. Tiwary, P. Kumbhakar, Enhanced nonlinear optical properties of graphene oxide-silver nanocomposites measured by Z-scan technique, RSC Adv. 6 (2016) 10319–10325. <https://doi.org/10.1039/c5ra21000c>.
164. C. Gautam, C.S. Tiwary, S. Jose, G. Brunetto, S. Ozden, S. Vinod, P. Raghavan, S. Biradar, D.S. Galvao, P.M. Ajayan, Synthesis of Low-Density, Carbon-Doped, Porous Hexagonal Boron Nitride Solids, ACS Nano. 9 (2015) 12088–12095. https://doi.org/10.1021/acsnano.5b05847.
165. M.B.M. Krishna, M.K.L. Man, S. Vinod, C. Chin, T. Harada, J. Taha-Tijerina, C.S. Tiwary, P. Nguyen, P. Chang, T.N. Narayanan, A. Rubio, P.M. Ajayan, S. Talapatra, K.M. Dani, Engineering Photophenomena in Large, 3D Structures Composed of Self-Assembled van der Waals Heterostructure Flakes, Adv. Opt. Mater. 3 (2015) 1551–1556. https://doi.org/10.1002/adom.201500296.
166. D. Chakravarty, C.S. Tiwary, L.D. Machado, G. Brunetto, S. Vinod, R.M. Yadav, D.S. Galvao, S. V. Joshi, G. Sundararajan, P.M. Ajayan, Zirconia-Nanoparticle-Reinforced Morphology-Engineered Graphene-Based Foams, Adv. Mater. 27 (2015) 4534–4543. https://doi.org/10.1002/adma.201502409.
167. K. Keyshar, Y. Gong, G. Ye, G. Brunetto, W. Zhou, D.P. Cole, K. Hackenberg, Y. He, L. Machado, M. Kabbani, A.H.C. Hart, B. Li, D.S. Galvao, A. George, R. Vajtai, C.S. Tiwary, P.M. Ajayan, Chemical Vapor Deposition of Monolayer Rhenium Disulfide (ReS2), Adv. Mater. 27 (2015) 4640–4648. https://doi.org/10.1002/adma.201501795.
168. C.S. Tiwary, B. Javvaji, C. Kumar, D.R. Mahapatra, S. Ozden, P.M. Ajayan, K. Chattopadhyay, Chemical-free graphene by unzipping carbon nanotubes using cryo-milling, Carbon N. Y. 89 (2015) 217–224. https://doi.org/10.1016/j.carbon.2015.03.036.
169. R. Romero Aburto, L.B. Alemany, T.K. Weldeghiorghis, S. Ozden, Z. Peng, A. Lherbier, A.R. Botello Méndez, C.S. Tiwary, J. Taha-Tijerina, Z. Yan, M. Tabata, J.C. Charlier, J.M. Tour, P.M. Ajayan, Chemical Makeup and Hydrophilic Behavior of Graphene Oxide Nanoribbons after Low-Temperature Fluorination, ACS Nano. 9 (2015) 7009–7018. https://doi.org/10.1021/acsnano.5b01330.
170. P. Kumbhakar, A.K. Kole, C.S. Tiwary, S. Biswas, S. Vinod, J. Taha-Tijerina, U. Chatterjee, P.M. Ajayan, Nonlinear Optical Properties and Temperature-Dependent UV-Vis Absorption and Photoluminescence Emission in 2D Hexagonal Boron Nitride Nanosheets, Adv. Opt. Mater. 3 (2015) 828–835. https://doi.org/10.1002/adom.201400445.
171. J. Taha-Tijerina, D. Venkataramani, C.P. Aichele, C.S. Tiwary, J.E. Smay, A. Mathkar, P. Chang, P.M. Ajayan, Quantification of the particle size and stability of graphene oxide in a variety of solvents, Part. Part. Syst. Charact. 32 (2015) 334–339. https://doi.org/10.1002/ppsc.201400099.
172. H. Huang, G. Ye, S. Yang, H. Fei, C.S. Tiwary, Y. Gong, R. Vajtai, J.M. Tour, X. Wang, P.M. Ajayan, Nanosized Pt anchored onto 3D nitrogen-doped graphene nanoribbons towards efficient methanol electrooxidation, J. Mater. Chem. A. 3 (2015) 19696–19701. <https://doi.org/10.1039/c5ta05372b>.
173. S. Vinod, C.S. Tiwary, P.A. Da Silva Autreto, J. Taha-Tijerina, S. Ozden, A.C. Chipara, R. Vajtai, D.S. Galvao, T.N. Narayanan, P.M. Ajayan, Low-density three-dimensional foam using self-reinforced hybrid two-dimensional atomic layers, Nat. Commun. 5 (2014) 4541. https://doi.org/10.1038/ncomms5541.
174. **3D printing/Additive manufacturing of materials**
175. B.S. Haile, V. Pal, T. Pal, S. Slathia, G.M. Jigi, S.M. Negedu, ... & C.S. Tiwary, (2025). Direct Ink Writing (3D Printing) of Robust, Highly Efficient, Double‐Half‐Heusler Thermoelectric High‐Entropy Alloy. *Advanced Engineering Materials*, *27*(7), 2402283.
176. V. Preetham, A. Singh, C.S. Tiwary, & A.K. Gupta, (2025). Advancing anammox pathways for wastewater treatment: A focus on conventional carrier challenges and innovations of 3D printed biocarrier. *Journal of Environmental Chemical Engineering*, 116411.
177. R. Das, R.B. de Oliveira, R. Tromer, D.S. Galvao, P.S. Owuor, A. Khan, ... & C.S. Tiwary, (2025). Wear resistance and conducting property of laser-melted copper–graphene composite. *Progress in Additive Manufacturing*, 1-16.
178. R. Das, N.K. Katiyar, A. Khan, P.S. Owuor, S. Ike, S. Sarkar, ... & C.S. Tiwary, (2025). Enhanced mechanical, tribological, and thermal properties of copper-graphene composites using additive manufacturing. *Journal of Manufacturing Processes*, *136*, 380-390.
179. S.M. Sajadi, R. Das, M.S.H. Thakur, P. Boul, M.M. Rahman, C.S. Tiwary, & P. M. Ajayan, (2025). Direct ink writing of metals and metal-based heterostructures. *Journal of Materials Science*, *60*(3), 1290-1300.
180. R. Das, P.K. Dubey, I. Manna, S. Chakraborty, & C.S. Tiwary, (2025). Properties of highly controlled laser-melted aluminum–nickel eutectic alloys and fundamental insight
181. on the dynamics of nonequilibrium thermal processing. *Journal of Materials Science*, *60*(3), 1598-1617.
182. R. Das, R.B. de Oliveira, B Kumar, V. Mishra, S. Sarkar, S. Sarkar, ... & C.S. Tiwary, (2025). Engineering the Atomic Interface of Refractory‐Metal‐Reinforced Copper Matrix Using Direct Ink 3D Printing. *Advanced Engineering Materials*, *27*(2), 2401747.
183. S. M. Sajadi, R. Das, Md S.H. Thakur, P. Boul, M.M. Rahman, C.S. Tiwary, P.M. Ajayan, Direct ink writing of metals and metal-based heterostructures. J. Mater. Sci. 2025, 60, 1290–1300. https://doi.org/10.1007/s10853-024-10340-0
184. R. Das, P.K. Dubey, I. Manna, S. Chakraborty, C.S. Tiwary, [Properties of highly controlled laser-melted aluminium–nickel eutectic alloys and fundamental insights on the dynamics of nonequilibrium thermal processing](https://link.springer.com/article/10.1007/s10853-024-10464-3),  J Mater Sci 2025, 60, 1598–1617. https://doi.org/10.1007/s10853-024-10464-3
185. R.S. Ambekar, L.V. Bastos, D.S. Galvao, C.S. Tiwary, C.F. Woellner, Material extrusion of topologically engineered architecture inspired by carbon-based interlocked petal-schwarzites, Carbon Trends, 2024, 17, 100431. <https://doi.org/10.1016/j.cartre.2024.100431>
186. M. Das, A. Jana, R. Swarnkar, A. Dixit, S.K. Panda, S. Kumar, R. Devasia, C.S. Tiwary, Strengthening SiC Ceramic Structural Integrity Made via 3D Printingwith Pyrolysis and Precursor Infiltration, ACS Appl. Eng. Mater. 2024, 2, 2549−2558. https://doi.org/10.1021/acsaenm.4c00475
187. R.S. Ambekar, A. Joseph, S. Ganji, R. Agrawal, G. Nirmal, C.S. Tiwary, Printing resolution effect on mechanical properties of porous boehmite direct ink 3D printed structures, J. Ceraam. Int. 2024, 50, 44447-44456, https://doi.org/10.1016/j.ceramint.2024.08.292
188. [R.S. Ambekar](https://onlinelibrary.wiley.com/authored-by/Ambekar/Rushikesh+S.), [E.F. Oliveira](https://onlinelibrary.wiley.com/authored-by/Oliveira/Eliezer+F.), [P. Pugazhenthi](https://onlinelibrary.wiley.com/authored-by/Pugazhenthi/Piraisoodan), [S. Singh](https://onlinelibrary.wiley.com/authored-by/Singh/Shatrughan), [D.R. Mahapatra](https://onlinelibrary.wiley.com/authored-by/Mahapatra/Debiprosad+Roy), [D.S. Galvao](https://onlinelibrary.wiley.com/authored-by/Galvao/Douglas+S.), [C.S. Tiwary](https://onlinelibrary.wiley.com/authored-by/Tiwary/Chandra+S.), Drop-Weight Impact Resistance of 3D-Printed Complex Zeolite-Inspired Structures, Adv. Eng. Mater. 2024, 26, 2400035, https://doi.org/ 0.1002/adem.202400035
189. H. Singh, R.S. Ambekar, D. Das, V.A. Danam, N.K. Katiyar, B. Kanti Das, C.S. Tiwary, J. Bhattacharya, Enhancing structural resilience by using 3D printed complex polymer reinforcement for high damage tolerant structures, Constr. Build. Mater. 425 (2024) 136085. https://doi.org/10.1016/J.CONBUILDMAT.2024.136085.
190. V. Preetham, D. Saidulu, C.S. Tiwary, A.K. Gupta, Enhancement of simultaneous nitrification denitrification (SND) and simultaneous nitrification-anammox-denitrification (SNAD) via 3D printed carriers: Insights into critical factors, functional microbes, and potential solutions, J. Clean. Prod. 458 (2024) 142520. https://doi.org/10.1016/J.JCLEPRO.2024.142520.
191. L.C. Felix, R. Ambekar, R.M. Tromer, C.F. Woellner, V. Rodrigues, P.M. Ajayan, C.S. Tiwary, D.S. Galvao, From Pure Mathematics to Macroscale Applications: The Genesis of Schwarzites, (2024). http://arxiv.org/abs/2401.07884.
192. R. Das, N.K. Katiyar, S. Sarkar, S. Sarkar, V. Mishra, C.S. Tiwary, Engineering the Interface of Cu-hBN Immiscible System Using 3D Printing To Enhance Mechanical and Thermal Properties, ACS Appl. Eng. Mater. 2 (2024) 1234–1244. https://doi.org/10.1021/acsaenm.3c00722.
193. P. Ghosal, A. Parui, A.K. Singh, P. Kumbhakar, A.K. Gupta, C.S. Tiwary, Porous 3D Printed System for Synergistic Tandem Water Cleaning-Energy Generation, Adv. Sustain. Syst. 8 (2024) 2300321. https://doi.org/https://doi.org/10.1002/adsu.202300321.
194. P. Ghosal, A. Parui, A.K. Singh, P. Kumbhakar, A.K. Gupta, C.S. Tiwary, Porous 3D Printed System for Synergistic Tandem Water Cleaning-Energy Generation, Adv. Sustain. Syst. 8 (2024) 2470003. https://doi.org/https://doi.org/10.1002/adsu.202470003.
195. R.S. Ambekar, A. Joseph, S. Ganji, G. Nirmal, R. Agrawal, C.S. Tiwary, Enhanced Mechanical Properties of Direct Ink Writing (3D Printed) Hexagonal Boron Nitride Reinforced Porous Boehmite Structures, Adv. Eng. Mater. 26 (2024) 2301830. https://doi.org/https://doi.org/10.1002/adem.202301830.
196. R.S. Ambekar, A. Joseph, S. Ganji, G. Nirmal, R. Agrawal, C.S. Tiwary, Enhanced Mechanical Properties of Direct Ink Writing (3D Printed) Hexagonal Boron Nitride Reinforced Porous Boehmite Structures, Adv. Eng. Mater. 26 (2024) 2470017. https://doi.org/https://doi.org/10.1002/adem.202470017.
197. M. Das, A. Dixit, A. Jana, R. Karthik, P.R. Sreeram, H. Bora, S. Dhara, S.K. Panda, C.S. Tiwary, Enhanced toughness and strength of 3D printed carbide-oxide composite for biomedical applications, J. Mech. Behav. Biomed. Mater. 150 (2024) 106290. https://doi.org/10.1016/J.JMBBM.2023.106290.
198. H. Singh, A.B. Santos, D. Das, R.S. Ambekar, P. Saxena, C.F. Woellner, N.K. Katiyar, C.S. Tiwary, Stress concentration targeted reinforcement using multi-material based 3D printing, Appl. Mater. Today. 36 (2024) 102010. https://doi.org/10.1016/J.APMT.2023.102010.
199. A. Srivastava, R.S. Ambekar, B. Gupta, C.S. Tiwary, A.K. Gupta, Schwarzite-based 3D-printed carriers for enhanced performance of sequencing batch biofilm reactor (SBBR) for wastewater treatment, J. Environ. Chem. Eng. 12 (2024) 111794. https://doi.org/10.1016/J.JECE.2023.111794.
200. S.M. Sajadi, P. Boul, C.S. Tiwary, M.M. Rahman, P.M. Ajayan, C. Thaemltiz, Direct ink printing of multi-material composite structures, US Pat. (2024) US11858039B2.
201. L. V. Bastos, R.S. Ambekar, C.S. Tiwary, D.S. Galvao, C.F. Woellner, Mechanical energy absorption of architecturally interlocked petal-schwarzites, Carbon Trends. 13 (2023) 100299. https://doi.org/10.1016/j.cartre.2023.100299.
202. A. Dixit, M. Das, H. Singh, S.K. Panda, N.M. Pugno, N.K. Katiyar, C.S. Tiwary, Unleashing Enhanced Compressive Strength: 3D Printed Octopus-Inspired Suction Cups Using Topological Engineering, ACS Appl. Polym. Mater. 5 (2023) 9236–9244. https://doi.org/10.1021/acsapm.3c01721.
203. A.Z. Khater, M.A.S.R. Saadi, S. Bhattacharyya, A. Kutana, M. Tripathi, M. Kamble, S. Song, M. Lou, M. Barnes, M.D. Meyer, V.V.J. Harikrishnan, A.B. Dalton, N. Koratkar, C.S. Tiwary, P.J. Boul, B. Yakobson, H. Zhu, P.M. Ajayan, M.M. Rahman, Processing dynamics of carbon nanotube-epoxy nanocomposites during 3D printing, Cell Reports Phys. Sci. 4 (2023) 101617. https://doi.org/10.1016/j.xcrp.2023.101617.
204. P. Kumbhakar, R.S. Ambekar, A. Parui, A.K. Roy, D. Roy, A.K. Singh, C.S. Tiwary, Energy Harvesting Using ZnO Nanosheet-Decorated 3D-Printed Fabrics, ACS Appl. Mater. Interfaces. 15 (2023) 44513–44520. https://doi.org/10.1021/acsami.3c08374.
205. M. Das, A. Jana, A. Dixit, R. Mishra, S. Maity, K. R, S.S. Basha, P. Maiti, S.K. Panda, A. Arora, P.S. Owuor, C.S. Tiwary, 3D printing of tough nature inspired hierarchical architecture using chicken bone and eggshell biowaste for biomedical applications, Ceram. Int. 49 (2023) 29274–29287. https://doi.org/10.1016/j.ceramint.2023.06.220.
206. A. Jayakumar, R.S. Ambekar, P.L. Mahapatra, A.K. Singh, T.K. Kundu, S. P R, R.R. Nair, C.S. Tiwary, Energy Harvesting Using High-Strength and Flexible 3D-Printed Cellulose/Hexagonal Boron Nitride Nanosheet Composites, ACS Appl. Nano Mater. 6 (2023) 14278–14288. <https://doi.org/10.1021/acsanm.3c02233>.
207. M. Das, K. R, S. P R, A. Jana, A. Dixit, S.K. Panda, D. Roy, C.S. Tiwary, Sustainable Piezoelectric Energy Harvesting Using 3D Printing with Chicken Bone Extract, ACS Sustain. Chem. Eng. 11 (2023) 14308–14316. https://doi.org/10.1021/acssuschemeng.3c03873.
208. A. Jana, M. Das, S. Tiwari, S.S. Basha, A.R.S. Gautam, S.K. Panda, R. Mitra, S. Kumar, R. Devasia, C.S. Tiwary, Effect of particle size on additive manufacturing of complex architecture of silicon carbide, Ceram. Int. 49 (2023) 17396–17404. https://doi.org/10.1016/j.ceramint.2023.02.108.
209. P. Kumbhakar, A. Pramanik, S.S. Mishra, R. Tromer, K. Biswas, A. Dasgupta, D.S. Galvao, C.S. Tiwary, Enhanced Light Scattering Using a Two-Dimensional Quasicrystal-Decorated 3D-Printed Nature-Inspired Bio-photonic Architecture, J. Phys. Chem. C. 127 (2023) 9779–9786. https://doi.org/10.1021/acs.jpcc.3c00513.
210. M. Das, R. Mishra, P. Das, S.K. Kashyap, S.K. Panda, R. Mitra, P.S. Owuor, A. Arora, C.S. Tiwary, Controlled directionality in 3D printing of graphite-reinforced polymer composite with enhanced mechanical properties, Compos. Sci. Technol. 235 (2023) 109955. https://doi.org/10.1016/j.compscitech.2023.109955.
211. M. Das, A. Jana, R. Mishra, S. Maity, P. Maiti, S.K. Panda, R. Mitra, A. Arora, P.S. Owuor, C.S. Tiwary, 3D Printing of a Biocompatible Nanoink Derived from Waste Animal Bones, ACS Appl. Bio Mater. 6 (2023) 1566–1576. https://doi.org/10.1021/acsabm.2c01075.
212. P. Ghosal, A. Parui, A.K. Singh, P. Kumbhakar, A.K. Gupta, C.S. Tiwary, Porous 3D Printed System for Synergistic Tandem Water Cleaning‐Energy Generation, Adv. Sustain. Syst. (2023). <https://doi.org/10.1002/adsu.202300321>.
213. E.F. Oliveira, R.S. Ambekar, D.S. Galvao, C.S. Tiwary, Schwarzites and schwarzynes based load-bear resistant 3D printed hierarchical structures, Addit. Manuf. 60 (2022) 103180. https://doi.org/10.1016/j.addma.2022.103180.
214. P. Kumbhakar, A. Parui, R.S. Ambekar, M. Mukherjee, S. Siddique, N.M. Pugno, A.K. Singh, C.S. Tiwary, Rain Energy Harvesting Using Atomically Thin Gadolinium Telluride Decorated 3D Printed Nanogenerator, Adv. Sustain. Syst. 6 (2022) 2200296. https://doi.org/10.1002/adsu.202200296.
215. L.C. Felix, R.S. Ambekar, C.F. Woellner, B. Kushwaha, V. Pal, C.S. Tiwary, D.S. Galvao, Mechanical properties of 3D-printed pentadiamond, J. Phys. D. Appl. Phys. 55 (2022) 465301. https://doi.org/10.1088/1361-6463/ac91dc.
216. L.C. Felix, R.M. Tromer, C.F. Woellner, C.S. Tiwary, D.S. Galvao, Mechanical response of pentadiamond: A DFT and molecular dynamics study, Phys. B Condens. Matter. 629 (2022) 413576. https://doi.org/10.1016/j.physb.2021.413576.
217. P. Ghosal, B. Gupta, R.S. Ambekar, M.M. Rahman, P.M. Ajayan, N. Aich, A.K. Gupta, C.S. Tiwary, 3D Printed Materials in Water Treatment Applications, Adv. Sustain. Syst. 6 (2022) 2100282. https://doi.org/10.1002/adsu.202100282.
218. V. Gaal, L.C. Felix, C.F. Woellner, D.S. Galvao, C.S. Tiwary, M.A. D’Ávila, V. Rodrigues, Mechanical properties of 3D printed macroscopic models of schwarzites, Nano Sel. 3 (2022) 450–458. https://doi.org/10.1002/nano.202100147.
219. M. Das, R. Alam, M. Das, B. Biswal, B.P. Samal, A. Patnaik, S.K. Panda, P.S. Owuor, P. Patra, C.S. Tiwary, Management of hard tissue abnormalities and digital orthopaedics using additive manufacturing techniques, Oxford Open Mater. Sci. 2 (2022). https://doi.org/10.1093/oxfmat/itac009.
220. B. Kushwaha, A. Kumar, R.S. Ambekar, V. Arya, S.D. Negedu, D. Bakshi, F.E. Olu, R. Sastri Ayyagari, V. Pal, K.K. Sadasivuni, N.M. Pugno, C. Bakli, C.S. Tiwary, Understanding the mechanics of complex topology of the 3D printed Anthill architecture, Oxford Open Mater. Sci. 2 (2022). <https://doi.org/10.1093/oxfmat/itac003>.
221. R.S. Ambekar, E.F. Oliveira, B. Kushwaha, V. Pal, P.M. Ajayan, A.K. Roy, D.S. Galvao, C.S. Tiwary, Flexure resistant 3D printed zeolite-inspired structures, Addit. Manuf. 47 (2021) 102297. https://doi.org/10.1016/j.addma.2021.102297.
222. M. Das, R.S. Ambekar, S.K. Panda, S. Chakraborty, C.S. Tiwary, 2D nanomaterials in 3D/4D-printed biomedical devices, J. Mater. Res. (2021). https://doi.org/10.1557/s43578-021-00287-2.
223. P. Kumbhakar, R.S. Ambekar, P.L. Mahapatra, C. Sekhar Tiwary, Quantifying instant water cleaning efficiency using zinc oxide decorated complex 3D printed porous architectures, J. Hazard. Mater. 418 (2021) 126383. https://doi.org/10.1016/j.jhazmat.2021.126383.
224. R.S. Ambekar, B. Kushwaha, P. Sharma, F. Bosia, M. Fraldi, N.M. Pugno, C.S. Tiwary, Topologically engineered 3D printed architectures with superior mechanical strength, Mater. Today. 48 (2021) 72–94. https://doi.org/10.1016/j.mattod.2021.03.014.
225. S.M. Sajadi, S. Enayat, L. Vásárhelyi, A. Alabastri, M. Lou, L.M. Sassi, A. Kutana, S. Bhowmick, C. Durante, Á. Kukovecz, A.B. Puthirath, Z. Kónya, R. Vajtai, P. Boul, C.S. Tiwary, M.M. Rahman, P.M. Ajayan, Three-dimensional printing of complex graphite structures, Carbon N. Y. 181 (2021) 260–269. https://doi.org/10.1016/j.carbon.2021.05.003.
226. S.M. Sajadi, L. Vásárhelyi, R. Mousavi, A.H. Rahmati, Z. Kónya, Á. Kukovecz, T. Arif, T. Filleter, R. Vajtai, P. Boul, Z. Pang, T. Li, C.S. Tiwary, M.M. Rahman, P.M. Ajayan, Damage-tolerant 3D-printed ceramics via conformal coating, Sci. Adv. 7 (2021). https://doi.org/10.1126/sciadv.abc5028.
227. R.S. Ambekar, I. Mohanty, S. Kishore, R. Das, V. Pal, B. Kushwaha, A.K. Roy, S. Kumar Kar, C.S. Tiwary, Atomic Scale Structure Inspired 3D‐Printed Porous Structures with Tunable Mechanical Response, Adv. Eng. Mater. (2021) 2001428. https://doi.org/10.1002/adem.202001428.
228. B. Kushwaha, K. Dwivedi, R.S. Ambekar, V. Pal, D.P. Jena, D.R. Mahapatra, C.S. Tiwary, Mechanical and Acoustic Behavior of 3D Printed Hierarchical Mathematical Fractal Menger Sponge, Adv. Eng. Mater. (2021) 2001471. https://doi.org/10.1002/adem.202001471.
229. S.M. Sajadi, C.S. Tiwary, A.H. Rahmati, S.L. Eichmann, C.J. Thaemlitz, D. Salpekar, A.B. Puthirath, P.J. Boul, M.M. Rahman, A. Meiyazhagan, P.M. Ajayan, Deformation resilient cement structures using 3D-printed molds, IScience. 24 (2021) 102174. https://doi.org/10.1016/j.isci.2021.102174.
230. B. Gupta, R.S. Ambekar, R.M. Tromer, P.S. Ghosal, R. Sinha, A. Majumder, P. Kumbhakar, P.M. Ajayan, D.S. Galvao, A.K. Gupta, C.S. Tiwary, Development of a schwarzite-based moving bed 3D printed water treatment system for nanoplastic remediation, RSC Adv. 11 (2021) 19788–19796. https://doi.org/10.1039/d1ra03097c.
231. R.S. Ambekar, E.F. Oliveira, B. Kushwaha, V. Pal, L.D. Machado, S.M. Sajadi, R.H. Baughman, P.M. Ajayan, A.K. Roy, D.S. Galvao, C.S. Tiwary, On the mechanical properties of atomic and 3D printed zeolite-templated carbon nanotube networks, Addit. Manuf. 37 (2021) 101628. <https://doi.org/10.1016/j.addma.2020.101628>.
232. S.M. Sajadi, C.F. Woellner, P. Ramesh, S.L. Eichmann, Q. Sun, P.J. Boul, C.J. Thaemlitz, M.M. Rahman, R.H. Baughman, D.S. Galvão, C.S. Tiwary, P.M. Ajayan, 3D Printed Tubulanes as Lightweight Hypervelocity Impact Resistant Structures, Small. 15 (2019) 1904747. <https://doi.org/10.1002/smll.201904747>.
233. S.M. Sajadi, P.S. Owuor, R. Vajtai, J. Lou, R.S. Ayyagari, C.S. Tiwary, P.M. Ajayan, Boxception: Impact Resistance Structure Using 3D Printing, Adv. Eng. Mater. 21 (2019) 1900167. https://doi.org/10.1002/adem.201900167.
234. S.M. Sajadi, P.J. Boul, C. Thaemlitz, A.K. Meiyazhagan, A.B. Puthirath, C.S. Tiwary, M.M. Rahman, P.M. Ajayan, Direct Ink Writing of Cement Structures Modified with Nanoscale Additive, Adv. Eng. Mater. 21 (2019) 1801380. <https://doi.org/10.1002/adem.201801380>.
235. S.M. Sajadi, P.S. Owuor, S. Schara, C.F. Woellner, V. Rodrigues, R. Vajtai, J. Lou, D.S. Galvão, C.S. Tiwary, P.M. Ajayan, Multiscale Geometric Design Principles Applied to 3D Printed Schwarzites, Adv. Mater. 30 (2018) 1704820. <https://doi.org/10.1002/adma.201704820>.
236. C.S. Tiwary, S. Kishore, S. Sarkar, D.R. Mahapatra, P.M. Ajayan, K. Chattopadhyay, Morphogenesis and mechanostabilization of complex natural and 3D printed shapes, Sci. Adv. 1 (2015) e1400052. https://doi.org/10.1126/sciadv.1400052.
237. **Alloy development**
238. N. Tiwari, S. Mishra, A. Srivastava, S. Sarkar, V. Chaudhary, M. Paliwal, ... & C.S. Tiwary, (2025). Enhanced Magnetocaloric and Mechanical Properties of Novel Mn–Ni–Cu and Mn–Ni–Ga Alloys for Near‐Room Temperature Applications. *Advanced Engineering Materials*, *27*(4), 2401601.
239. N. Tiwari, C.S. Tiwary, S. Mishra, S. Sarkar, S. Talapatra, M. Palit, ... & A.K. Singh, (2025). Magnetocaloric Effect in Mn-rich Heusler derived Alloys for Room Temperature Application. *Journal of Materials Chemistry C*.
240. A. Sharma, C.S. Tiwary, & D. Banerjee, Microstructural length scale manipulation via solidification and its influence on mechanical behavior in a high-strength intermetallic-based eutectic alloy. *J Mater Sci* **60**, 1522–1534 (2025). https://doi.org/10.1007/s10853-024-10319-x
241. G.M. Jigi, V. Pal, B.S. Haile, P.R. Sreeram, D. Pati, S.D. Negedu, M. Paliwal, F.E. Olu, C.S. Tiwary, Microstructure evolution and thermoelectric behaviour of directionally solidified Bi2Te3 based multiphase thermoelectric, J. Alloys Compd., 1010 (2025), 177935. <https://doi.org/10.1016/j.jallcom.2024.177935>
242. S.S. Legese, D. Chandravanshi, S.S.S. Gadhavajhala, V. Pal, A.T. Serbesa, B. Srinivasan, C.S. Tiwary, Effect of cooling rate on the microstructure and thermal conductivity of 5 at% Cu–Bi2Te3. J Mater Sci. 60, 1313–1327 (2025). <https://doi.org/10.1007/s10853-024-10173-x>
243. V. Pal, S.S. Legese, PR Sreeram, K. Chattopadhyay, M. Paliwal, C.S. Tiwary, Microstructure evolution and thermoelectric behaviour of directionally solidified Bi2Te3 –Ga2Te3 eutectic alloy, J. Phys. D: Appl. Phys. 2025, 58, 095502. https://doi.org/10.1088/1361-6463/ad9df9
244. A. Sharma, C.S. Tiwary, D. Banerjee, Microstructural length scale manipulation via solidification and its influence on mechanical behavior in a high-strength intermetallic-based eutectic alloy. J. Mater. Sci. 60, 1522–1534 (2025). https://doi.org/10.1007/s10853-024-10319-x
245. A.T. Serbesa, V. Pal, S.S. Legese, S. Mukherjee, S. Das, B. Kumar, C.G. Adamo, P.R. Sreeram, M. Paliwal, E.F. Olu, C.S. Tiwary, K. Chattopadhyay, Microstructure and thermoelectric properties of as-cast Ag2Te/AgBiTe2 and Ag2Te/Bi2Te3 two-phase alloys, J. Phys. Chem. Solids. 190 (2024) 111995. https://doi.org/10.1016/J.JPCS.2024.111995.
246. V. Gunjal, C.S. Tiwary, K. Chattopadhyay, D. Banerjee, Intermetallic eutectics with gigapascal strength and enhanced ductility, Intermetallics. 168 (2024) 108228. https://doi.org/10.1016/J.INTERMET.2024.108228.
247. S. Chabri, C.S. Tiwary, Enhanced Metastable Solubility by Ball Milling of Rapidly Solidified Cu-Co-Mn Ribbon, J. Mater. Eng. Perform. (2024). https://doi.org/10.1007/s11665-024-09524-1.
248. C.G. Adamo, A. Srivastava, S.S. Legese, Y. Kawamura, A.T. Serbesa, S. Punathil Raman, F.E. Olu, C.S. Tiwary, A.K. Singh, K. Chattopadhyay, Thermoelectric Transport of a Novel Zr-Based Half-Heusler High-Entropy Alloy, Energy Technol. 12 (2024) 2301119. <https://doi.org/https://doi.org/10.1002/ente.202301119>.
249. A.T. Serbesa, V. Pal, P.R. Sreeram, S.S. Legese, B. Kumar, C.G. Adamo, S. Mukherjee, M. Paliwal, F.E. Olu, C.S. Tiwary, K. Chattopadhyay, Transport properties and microstructural evolution of Bi–Cu–Te ternary alloys, J. Mater. Sci. 58 (2023) 16462–16473. https://doi.org/10.1007/s10853-023-09004-2.
250. V. Pal, B. Kumar, M.-K. Paek, C.S. Tiwary, M. Paliwal, Microstructure design in Bi-Ga-Te system using a combination of thermodynamic calculations and experiments for potential thermoelectric material, Mater. Chem. Phys. 297 (2023) 127366. <https://doi.org/10.1016/j.matchemphys.2023.127366>.
251. V. Pal, B. Kumar, J. Choi, B. Kumar, C.S. Tiwary, M. Paliwal, M.-K. Paek, Development of a self-consistent thermodynamic database for Ga-In-Te system and experimental validation: a potential system for thermoelectric application, J. Mater. Sci. 57 (2022) 18178–18194. https://doi.org/10.1007/s10853-022-07699-3.
252. D. Roy, S. Pal, C.S. Tiwary, A.K. Gupta, P.N. Babu, R. Mitra, Stable nanocrystalline structure attainment and strength enhancement of Cu base alloy using bi-modal distributed tungsten dispersoids, Philos. Mag. (2021) 1–21. https://doi.org/10.1080/14786435.2021.1988173.
253. C.S. Tiwary, P. Pandey, S. Sarkar, R. Das, S. Samal, K. Biswas, K. Chattopadhyay, Five decades of research on the development of eutectic as engineering materials, Prog. Mater. Sci. 123 (2022) 100793. <https://doi.org/10.1016/j.pmatsci.2021.100793>.
254. A. Ranjan, K. Kishore, V. Pal, M. Adhikary, A. Kumar, C.S. Tiwary, M. Paliwal, Microstructure and Wear Behaviour of a Novel Fe-Cr-V- C Plasma Transferred Arc Coating, Jom. (2021). https://doi.org/10.1007/s11837-021-04854-0.
255. B. Kumar, M. Paliwal, C.S. Tiwary, M.K. Paek, Thermodynamic optimization of the ternary Ga-Sn-Te system using modified Quasichemical model, Metals (Basel). 11 (2021) 1363. https://doi.org/10.3390/met11091363.
256. R. Das, V. Pal, B. Kumar, A.K. Roy, M. Paliwal, M. Palit, M.K. Paek, C.S. Tiwary, Improved mechanical and wear properties of Cu-Ga-In ternary alloys through liquid reinforcement, Mater. Today Commun. 27 (2021) 102409. https://doi.org/10.1016/j.mtcomm.2021.102409.
257. P. Biswas, S. Patra, H. Roy, C.S. Tiwary, M. Paliwal, M.K. Mondal, Effect of Mn Addition on the Mechanical Properties of Al–12.6Si Alloy: Role of Al15(MnFe)3Si2 Intermetallic and Microstructure Modification, Met. Mater. Int. 27 (2021) 1713–1727. https://doi.org/10.1007/s12540-019-00535-5.
258. D. Chakravarty, N. Laxman, R. Jayasree, R.B. Mane, S. Mathiazhagan, P.V.V. Srinivas, R. Das, M. Nagini, M. Eizadjou, L. Venkatesh, N. Ravi, D.R. Mahapatra, R. Vijay, S.P. Ringer, C.S. Tiwary, Ultrahigh transverse rupture strength in tungsten-based nanocomposites with minimal lattice misfit and dual microstructure, Int. J. Refract. Met. Hard Mater. 95 (2021) 105454. <https://doi.org/10.1016/j.ijrmhm.2020.105454>.
259. A. Bagchi, S. Sarkar, S. Bysakh, C.S. Tiwary, M.S. Hossain, S. Sarkar, P.K. Mukhopadhyay, Microstructural evolution and its outcome on the photo induced micro actuation effect and mechanical properties of copper doped Co-Ni-Al FSMA, J. Alloys Compd. 846 (2020) 156432. https://doi.org/10.1016/j.jallcom.2020.156432.
260. A. Rout, A. Gumaste, P. Pandey, E.F. Oliveira, S. Demiss, V.P. Mahesh, C. Bhatt, K. Raphael, R.S. Ayyagari, P.A.S. Autreto, M. Palit, F. Olu, D.S. Galvao, A. Arora, C.S. Tiwary, Bioinspired Aluminum Composite Reinforced with Soft Polymers with Enhanced Strength and Plasticity, Adv. Eng. Mater. 22 (2020) 1901116. https://doi.org/10.1002/adem.201901116.
261. C.S. Tiwary, M. Paliwal, S. Kashyap, P. Pandey, S. Sarkar, I. Kundu, S. Bhaskar, I.H. Jung, K. Chattopadhyay, D. Banerjee, Microstructures and mechanical properties of ternary Ti–Si–Sn alloys, Mater. Sci. Eng. A. 770 (2020) 138472. <https://doi.org/10.1016/j.msea.2019.138472>.
262. P. Pandey, C.S. Tiwary, K. Chattopadhyay, Effects of Cu and In Trace Elements on Microstructure and Thermal and Mechanical Properties of Sn-Zn Eutectic Alloy, J. Electron. Mater. 48 (2019) 2660–2669. https://doi.org/10.1007/s11664-018-06869-x.
263. A. Rout, P. Pandey, E.F. Oliveira, P.A. da Silva Autreto, A. Gumaste, A. Singh, D.S. Galvão, A. Arora, C.S. Tiwary, Atomically locked interfaces of metal (Aluminum) and polymer (Polypropylene) using mechanical friction, Polymer (Guildf). 169 (2019) 148–153. <https://doi.org/10.1016/j.polymer.2019.02.049>.
264. C.S. Tiwary, A. Kashiwar, S. Bhowmick, K.C. Hari Kumar, K. Chattopadhyay, D. Banerjee, Engineering an ultrafine intermetallic eutectic ternary alloy for high strength and high temperature applications, Scr. Mater. 157 (2018) 67–71. https://doi.org/10.1016/j.scriptamat.2018.07.036.
265. C.S. Tiwary, J. Prakash, S. Chakraborty, D.R. Mahapatra, K. Chattopadhyay, Subsurface deformation studies of aluminium during wear and its theoretical understanding using molecular dynamics, Philos. Mag. 98 (2018) 2680–2700. <https://doi.org/10.1080/14786435.2018.1502481>.
266. P. Pandey, S. Kashyap, C.S. Tiwary, K. Chattopadhyay, Development of High-Strength High-Temperature Cast Al-Ni-Cr Alloys Through Evolution of a Novel Composite Eutectic Structure, Metall. Mater. Trans. A Phys. Metall. Mater. Sci. 48 (2017) 5940–5950. https://doi.org/10.1007/s11661-017-4369-2.
267. Chandrasekhar TiwarySanjay KashyapOlu Emmanuel FemiDipankar BanerjeeKamanio Chattopadhyay, Nickel-aluminium-zirconium alloys, US9816159B2, 2017.
268. A. Lahiri, C. Tiwary, K. Chattopadhyay, A. Choudhury, Eutectic colony formation in systems with interfacial energy anisotropy: A phase field study, Comput. Mater. Sci. 130 (2017) 109–120. <https://doi.org/10.1016/j.commatsci.2017.01.007>.
269. P. Pandey, C.S. Tiwary, K. Chattopadhyay, Effects of Minute Addition of Ni on Microstructure and Mechanical Properties of Sn-Zn Eutectic Alloy, J. Electron. Mater. 45 (2016) 5468–5477. https://doi.org/10.1007/s11664-016-4742-8.
270. E. Svanidze, T. Besara, M. Fevsi Ozaydin, C.S. Tiwary, J.K. Wang, S. Radhakrishnan, S. Mani, Y. Xin, K. Han, H. Liang, T. Siegrist, P.M. Ajayan, E. Morosan, High hardness in the biocompatible intermetallic compound b-Ti3Au, Sci. Adv. 2 (2016) e1600319. <https://doi.org/10.1126/sciadv.1600319>.
271. C.S. Tiwary, S. Kashyap, D.H. Kim, K. Chattopadhyay, Al based ultra-fine eutectic with high room temperature plasticity and elevated temperature strength, Mater. Sci. Eng. A. 639 (2015) 359–369. <https://doi.org/10.1016/j.msea.2015.05.024>.
272. C.S. Tiwary, S. Kashyap, K. Chattopadhyay, Development of alloys with high strength at elevated temperatures by tuning the bimodal microstructure in the Al-Cu-Ni eutectic system, Scr. Mater. 93 (2014) 20–23. https://doi.org/10.1016/j.scriptamat.2014.08.020.
273. C.S. Tiwary, S. Chakraborty, D.R. Mahapatra, K. Chattopadhyay, Length-scale dependent mechanical properties of Al-Cu eutectic alloy: Molecular dynamics based model and its experimental verification, J. Appl. Phys. 115 (2014) 203502. https://doi.org/10.1063/1.4879249.
274. C. Tiwary, V. V. Gunjal, D. Banerjee, K. Chattopadhyay, Intermetallic eutectic alloys in the Ni-Al-Zr system with attractive high temperature properties, MATEC Web Conf. 14 (2014) 01005. <https://doi.org/10.1051/matecconf/20141401005>.
275. S. Kashyap, C.S. Tiwary, K. Chattopadhyay, Microstructural and mechanical behavior study of suction cast Nb-Si binary alloys, Mater. Sci. Eng. A. 583 (2013) 188–198. https://doi.org/10.1016/j.msea.2013.06.045.
276. C.S. Tiwary, S. Kashyap, K. Chattopadhyay, Effect of indium addition on microstructural, mechanical and oxidation properties of suction cast Nb-Si eutectic alloy, Mater. Sci. Technol. (United Kingdom). 29 (2013) 702–709. https://doi.org/10.1179/1743284713Y.0000000203.
277. C.S. Tiwary, S. Kashyap, K. Chattopadhyay, Effect of Mg addition on microstructural, mechanical and environmental properties of Nb-Si eutectic composite, Mater. Sci. Eng. A. 560 (2013) 200–207. https://doi.org/10.1016/j.msea.2012.09.056.
278. S. Kashyap, C.S. Tiwary, K. Chattopadhyay, Microstructure and mechanical properties of oxidation resistant suction cast Nb-Si-Al alloy, Mater. Sci. Eng. A. 559 (2013) 74–85. <https://doi.org/10.1016/j.msea.2012.08.027>.
279. C.S. Tiwary, D. Roy Mahapatra, K. Chattopadhyay, Effect of length scale on mechanical properties of Al-Cu eutectic alloy, Appl. Phys. Lett. 101 (2012) 171901. https://doi.org/10.1063/1.4761944.
280. S. Kashyap, C.S. Tiwary, K. Chattopadhyay, Effect of Gallium on microstructure and mechanical properties of Nb-Si eutectic alloy, Intermetallics. 19 (2011) 1943–1952. https://doi.org/10.1016/j.intermet.2011.05.018.
281. **Sustainable materials & technologies**
282. Deng, B., Eddy, L., Wyss, K.M. *et al.* Flash Joule heating for synthesis, upcycling and remediation. Nat. Rev. Clean Technol. 1, 32–54 (2025). <https://doi.org/10.1038/s44359-024-00002-4>
283. [M. Samanta](https://4spepublications.onlinelibrary.wiley.com/authored-by/Samanta/Moumita), [A. Verma](https://4spepublications.onlinelibrary.wiley.com/authored-by/Verma/Anu), [H. Singh](https://4spepublications.onlinelibrary.wiley.com/authored-by/Singh/Himanshu), [N.K. Katiyar](https://4spepublications.onlinelibrary.wiley.com/authored-by/Katiyar/Nirmal+Kumar), [R. Bandyopadhyay](https://4spepublications.onlinelibrary.wiley.com/authored-by/Bandyopadhyay/Rupam), [B.K. Das](https://4spepublications.onlinelibrary.wiley.com/authored-by/Das/Bidus+Kanti), [C.S. Tiwary](https://4spepublications.onlinelibrary.wiley.com/authored-by/Tiwary/Chandra+Sekhar), [J. Bhattacharya](https://4spepublications.onlinelibrary.wiley.com/authored-by/Bhattacharya/Jayanta), Positive changes in the mechanical and optical properties of the floor epoxy reinforced with green graphene, Polymer Composites. 2024, 45, 14672–14686. https://doi.org/10.1002/pc.28791
284. H. Singh, A. Verma, A. Joseph, V.A. Danam, B.K. Das, C.S. Tiwary, J. Bhattacharya, Sustainable additives for anticorrosive bitumen coatings on carbon steel under marine environment: Harnessing remnant agricultural biomass-derived green graphene, Materials letters, 2024, 369, 136772. <https://doi.org/10.1016/l.maylet.2024.136772>
285. A. Verma, C.S. Tiwary, J. Bhattacharya, Particle size-dependent anti-corrosion and mechanical behavior of green-graphene composite, Prog. Org. Coatings. 192 (2024) 108472. https://doi.org/10.1016/J.PORGCOAT.2024.108472.
286. A. Verma, C.S. Tiwary, J. Bhattacharya, Enhancement of hydrophobic, resistive barrier and anticorrosion performance of epoxy coating with addition of Clay-Modified Green Silico-Graphitic Carbon, Carbon Trends. 15 (2024) 100347. <https://doi.org/10.1016/J.CARTRE.2024.100347>.
287. A. Verma, R. Bandyopadhyay, C.S. Tiwary, B. Kanti Das, J. Bhattacharya, Engineering defect concentration and morphology of green graphene for the development of hard and anticorrosive coating on carbon steel, Corros. Sci. 224 (2023) 111523. <https://doi.org/10.1016/j.corsci.2023.111523>.
288. A. Verma, H. Singh, Y. Mahton, P. Saha, C.S. Tiwary, J. Bhattacharya, Use of waste to wealth process derived sustainable silica-rich graphene analogues to provide enhanced corrosion resistance properties for coatings on carbon steel, exposed to marine environments, Surf. Coatings Technol. 464 (2023) 129420. <https://doi.org/10.1016/j.surfcoat.2023.129420>.
289. S. Das, A. Biswas, J. Bhattacharya, C.S. Tiwary, M. Paliwal, Utilization of laterite ore as an oxygen carrier in chemical looping reforming of methane for syngas production, Int. J. Hydrogen Energy. (2023). https://doi.org/10.1016/j.ijhydene.2023.02.054.
290. C. Yu, C. Xia, Y. Wang, J. Zhang, J. Cui, Y. Zhang, H.H. Tan, C.S. Tiwary, J. Lv, Y. Wu, Dual-Carbon Engineering of Nanosized (Ni 0.28 Co 0.72 ) 1– x S for Li + Storage with Enhanced Rate Capability and Stability, ACS Appl. Nano Mater. 6 (2023) 10477–10486. https://doi.org/10.1021/acsanm.3c01422.
291. P. Kumbhakar, A. Parui, S. Dhakar, M. Paliwal, R. Behera, A.R.S. Gautam, S. Roy, P.M. Ajayan, S. Sharma, A.K. Singh, C.S. Tiwary, Spontaneous hydrogen production using gadolinium telluride, IScience. 26 (2023) 106510. https://doi.org/10.1016/j.isci.2023.106510.
292. A. Verma, P.L. Mahapatra, A. Srija, P.A. Taksal, S. Raj, H. Singh, B. Das, S. Choudhury, C.S. Tiwary, J. Bhattacharya, The effective utilization of different types of wastes to produce graphene and graphene analogs, in: Graphene Extr. from Waste, Elsevier, 2023: pp. 349–374. <https://doi.org/10.1016/B978-0-323-90914-3.00009-7>.
293. S. Das, A. Biswas, C.S. Tiwary, M. Paliwal, Hydrogen production using chemical looping technology: A review with emphasis on H2 yield of various oxygen carriers, Int. J. Hydrogen Energy. (2022). <https://doi.org/10.1016/j.ijhydene.2022.06.170>.
294. M.S. Kırgız, A. Gustavo de Sousa Galdino, J. Kinuthia, A. Khitab, M.I. Ul Hassan, J. Khatib, H. El Naggar, C. Thomas, J. Mirza, S. Kenai, T.A. Nguyen, M. Nehdi, M. Syarif, A. Ashteyat, R. Gobinath, A. Soliman, T.A. Tagbor, M.A. Kumbhalkar, N. Bheel, C.S. Tiwary, Synthesis, physico-mechanical properties, material processing, and math models of novel superior materials doped flake of carbon and colloid flake of carbon, J. Mater. Res. Technol. (2021). https://doi.org/10.1016/j.jmrt.2021.10.089.
295. M. Syarif, M.S. Kırgız, A.G. de S. Galdino, M.H. El Naggar, J. Mirza, J. Khatib, S. Kenai, M. Nehdi, J. Kinuthia, A. Khitab, C. Thomas, R. Gobinath, M.I.U. Hassan, Y.K. Wu, A. Ashteyat, A. Soliman, K. Muthusamy, T. Janardhanan, T.A. Tagbor, T.A. Nguyen, N. Bheel, M.A. Kumbhalkar, C.S. Tiwary, Development and assessment of cement and concrete made of the burning of quinary by-product, J. Mater. Res. Technol. 15 (2021) 3708–3721. https://doi.org/10.1016/j.jmrt.2021.09.140.
296. A. Bajpai, P. Kumbhakar, C.S. Tiwary, K. Biswas, Conducting Graphene Synthesis from Electronic Waste, ACS Sustain. Chem. Eng. 9 (2021) 14090–14100. <https://doi.org/10.1021/acssuschemeng.1c03817>.
297. D. Mandal, P.L. Mahapatra, R. Kumari, P. Kumbhakar, A. Biswas, B. Lahiri, A. Chandra, C.S. Tiwary, Convert waste petroleum coke to multi-heteroatom self-doped graphene and its application as supercapacitors, Emergent Mater. 4 (2021) 531–544. <https://doi.org/10.1007/s42247-020-00159-1>.
298. N. Sharma, A. Bajpai, P.K. Yadav, S. Nellaiappan, S. Sharma, C.S. Tiwary, K. Biswas, Green Route for Beneficiation of Metallic Materials from Electronic Waste for Selective Reduction of CO2, ACS Sustain. Chem. Eng. 8 (2020) 12142–12150. <https://doi.org/10.1021/acssuschemeng.0c03605>.
299. S. Nellaiappan, R. Kumar, C. Shivakumara, S. Irusta, J.A. Hachtel, J.C. Idrobo, A.K. Singh, C.S. Tiwary, S. Sharma, Electroreduction of Carbon Dioxide into Selective Hydrocarbons at Low Overpotential Using Isomorphic Atomic Substitution in Copper Oxide, ACS Sustain. Chem. Eng. 8 (2020) 179–189. <https://doi.org/10.1021/acssuschemeng.9b05087>.
300. P.S. Owuor, S. Inthong, S.M. Sajadi, P. Intawin, A.C. Chipara, C.F. Woellner, F.N. Sayed, H.H. Tsang, A. Stender, R. Vajtai, K. Pengpat, S. Eitssayeam, D.S. Galvão, J. Lou, C.S. Tiwary, P.M. Ajayan, Elastic and ‘transparent bone’ as an electrochemical separator, Mater. Today Chem. 12 (2019) 132–138. <https://doi.org/10.1016/j.mtchem.2018.12.009>.
301. C. Chingakham, C. Tiwary, V. Sajith, Waste Animal Bone as a Novel Layered Heterogeneous Catalyst for the Transesterification of Biodiesel, Catal. Letters. 149 (2019) 1100–1110. <https://doi.org/10.1007/s10562-019-02696-9>.
302. P.S. Owuor, T. Tsafack, H.Y. Hwang, M. Sajadi, S. Jung, T. Li, S. Susarla, B. Wei, R. Vajtai, J. Lou, S. Bhowmick, C.S. Tiwary, P.M. Ajayan, Interconnecting Bone Nanoparticles by Ovalbumin Molecules to Build a Three-Dimensional Low-Density and Tough Material, ACS Appl. Mater. Interfaces. 10 (2018) 41757–41762. https://doi.org/10.1021/acsami.8b13681.
303. A.C. Chipara, T. Tsafack, P.S. Owuor, J. Yeon, C.E. Junkermeier, A.C.T. van Duin, S. Bhowmick, S.A.S. Asif, S. Radhakrishnan, J.H. Park, G. Brunetto, B.A. Kaipparettu, D.S. Galvão, M. Chipara, J. Lou, H.H. Tsang, M. Dubey, R. Vajtai, C.S. Tiwary, P.M. Ajayan, Underwater adhesive using solid–liquid polymer mixes, Mater. Today Chem. 9 (2018) 149–157. https://doi.org/10.1016/j.mtchem.2018.07.002.
304. P.S. Owuor, T. Tsafack, H. Agrawal, H.Y. Hwang, M. Zelisko, T. Li, S. Radhakrishnan, J.H. Park, Y. Yang, A.S. Stender, S. Ozden, J. Joyner, R. Vajtai, B.A. Kaipparettu, B. Wei, J. Lou, P. Sharma, C.S. Tiwary, P.M. Ajayan, Poly-albumen: Bio-derived structural polymer from polymerized egg white, Mater. Today Chem. 9 (2018) 73–79. https://doi.org/10.1016/j.mtchem.2018.04.001.
305. P.S. Owuor, A.C. Hart, J. Lou, C.S. Tiwary, P.M. Ajayan, New paradigm in advanced composite and nanocomposite design, Reinf. Plast. 62 (2018) 263–265. https://doi.org/10.1016/j.repl.2017.07.005.
306. P.S. Owuor, V. Chaudhary, C.F. Woellner, V. Sharma, R. V. Ramanujan, A.S. Stender, M. Soto, S. Ozden, E. V. Barrera, R. Vajtai, D.S. Galvão, J. Lou, C.S. Tiwary, P.M. Ajayan, High stiffness polymer composite with tunable transparency, Mater. Today. 21 (2018) 475–482. <https://doi.org/10.1016/j.mattod.2017.12.004>.
307. P. Intawin, F.N. Sayed, K. Pengpat, J. Joyner, C.S. Tiwary, P.M. Ajayan, Bio-Derived Hierarchical 3D Architecture from Seeds for Supercapacitor Application, Jom. 69 (2017) 1513–1518. https://doi.org/10.1007/s11837-017-2406-7.
308. C.S. Tiwary, S. Kishore, R. Vasireddi, D.R. Mahapatra, P.M. Ajayan, K. Chattopadhyay, Electronic waste recycling via cryo-milling and nanoparticle beneficiation, Mater. Today. 20 (2017) 67–73. <https://doi.org/10.1016/j.mattod.2017.01.015>.
309. J. Wu, S. Ma, J. Sun, J.I. Gold, C. Tiwary, B. Kim, L. Zhu, N. Chopra, I.N. Odeh, R. Vajtai, A.Z. Yu, R. Luo, J. Lou, G. Ding, P.J.A. Kenis, P.M. Ajayan, A metal-free electrocatalyst for carbon dioxide reduction to multi-carbon hydrocarbons and oxygenates, Nat. Commun. 7 (2016) 13869. https://doi.org/10.1038/ncomms13869.
310. **Development of Nanoparticles**
311. S. Kumar, S.S. Mishra, N. Naskar, S. Sarkar, S. Kashyap, N.K. Katiyar, M. Paliwal, K. Biswas, C.S. Tiwary, K. Chattopadhyay, Experimental and theoretical study of size-dependent phase evolution in NaCl-KCl alloys, Next Materials, 6(2025), 100415. <https://doi.org/10.1016/j.nxmate.2024.100415>
312. N.K. Katiyar, C.S. Tiwary, A Prospective on Energy and Environment Applications of High Entropy Alloys, Trans. Indian Natl. Acad. Eng. (2024). https://doi.org/10.1007/s41403-024-00466-7.
313. S. Das, S. Chowdhury, C.S. Tiwary, High-entropy-based nano-materials for sustainable environmental applications, Nanoscale. 16 (2024) 8256–8272. <https://doi.org/10.1039/D4NR00474D>.
314. G.C. Mohanty, C. Chowde Gowda, P. Gakhad, S. Das, M. Sanjay, S. Chowdhury, K. Biswas, A. Singh, C.S. Tiwary, Iron-cobalt-nickel-copper-zinc (FeCoNiCuZn) high entropy alloy as positive electrode for high specific capacitance supercapacitor, Electrochim. Acta. 470 (2023) 143272. https://doi.org/10.1016/j.electacta.2023.143272.
315. S. Das, M. Sanjay, S. Kumar, S. Sarkar, C.S. Tiwary, S. Chowdhury, Magnetically separable MnFeCoNiCu-based high entropy alloy nanoparticles for photocatalytic oxidation of antibiotic cocktails in different aqueous matrices, Chem. Eng. J. 476 (2023) 146719. https://doi.org/10.1016/j.cej.2023.146719.
316. S. Dhakar, A. Sharma, N.K. Katiyar, A. Parui, R. Das, A.K. Singh, C.S. Tiwary, S. Sharma, K. Biswas, Utilization of structural high entropy alloy for CO oxidation to CO2, Mater. Today Energy. 37 (2023) 101386. https://doi.org/10.1016/j.mtener.2023.101386.
317. S. Das, M. Sanjay, A.R. Singh Gautam, R. Behera, C.S. Tiwary, S. Chowdhury, Low bandgap high entropy alloy for visible light-assisted photocatalytic degradation of pharmaceutically active compounds: Performance assessment and mechanistic insights, J. Environ. Manage. 342 (2023) 118081. https://doi.org/10.1016/j.jenvman.2023.118081.
318. A. Prakash, N.K. Katiyar, M.Y. Suarez-Villagran, J.H. Miller, L.D. Machado, C.S. Tiwary, K. Biswas, K. Chattopadhyay, Effects of size on water vapour absorption and regeneration in lithium chloride nanocrystals, Mater. Today Commun. 36 (2023) 106388. <https://doi.org/10.1016/j.mtcomm.2023.106388>.
319. R. Paul, D. Chatterjee, L. Das Ghosh, V. Narayanswamy, M.P. Singh, M. Agarwal, D. Ghosh, M. Radhakrishna, C.S. Tiwary, I. Provazník, K. Chattopadhyay, Synthesis, characterization and In-vitro studies of CNT/Gd2O3 hybrid structure, Carbon Trends. 11 (2023) 100272. <https://doi.org/10.1016/j.cartre.2023.100272>
320. C. Madan, S.R. Jha, N.K. Katiyar, A. Singh, R. Mitra, C.S. Tiwary, K. Biswas, A. Halder, Understanding the evolution of catalytically active multi-metal sites in a bifunctional high-entropy alloy electrocatalyst for zinc–air battery application, Energy Adv. 2 (2023) 2055–2068. https://doi.org/10.1039/D3YA00356F.
321. G.C. Mohanty, C.C. Gowda, P. Gakhad, M. Sanjay, S. Sarkar, K. Biswas, A. Singh, C.S. Tiwary, High energy density liquid state asymmetric supercapacitor devices using Co–Cr–Ni–Fe–Mn high entropy alloy, Mater. Adv. 4 (2023) 3839–3852. <https://doi.org/10.1039/D3MA00327B>.
322. L. Sharma, N.K. Katiyar, A. Parui, R. Das, R. Kumar, C.S. Tiwary, A.K. Singh, A. Halder, K. Biswas, Low-cost high entropy alloy (HEA) for high-efficiency oxygen evolution reaction (OER), Nano Res. 15 (2022) 4799–4806. https://doi.org/10.1007/s12274-021-3802-4.
323. P. Vibin Antony, M. Joseph, S. Ozden, C.S. Tiwary, V. Sajith, Heat transfer enhancement using CNT-coated needle electrodes in corona wind discharge system, Eur. Phys. J. Plus. 137 (2022) 524. <https://doi.org/10.1140/epjp/s13360-022-02723-6>.
324. N.K. Katiyar, S. Dhakar, A. Parui, P. Gakhad, A.K. Singh, K. Biswas, C.S. Tiwary, S. Sharma, Electrooxidation of Hydrazine Utilizing High-Entropy Alloys: Assisting the Oxygen Evolution Reaction at the Thermodynamic Voltage, ACS Catal. 11 (2021) 14000–14007. <https://doi.org/10.1021/acscatal.1c03571>.
325. N.K. Katiyar, K. Biswas, C.S. Tiwary, Cryomilling as environmentally friendly synthesis route to prepare nanomaterials, Int. Mater. Rev. 66 (2021) 493–532. https://doi.org/10.1080/09506608.2020.1825175.
326. N. Kumar Katiyar, K. Biswas, J.-W. Yeh, S. Sharma, C. Sekhar Tiwary, A perspective on the catalysis using the high entropy alloys, Nano Energy. 88 (2021) 106261. https://doi.org/10.1016/j.nanoen.2021.106261.
327. P. Goyal, C.S. Tiwary, S.K. Misra, Ion exchange based approach for rapid and selective Pb(II) removal using iron oxide decorated metal organic framework hybrid, J. Environ. Manage. 277 (2021) 111469. <https://doi.org/10.1016/j.jenvman.2020.111469>.
328. D. Mandal, S. Biswas, A. Chowdhury, D. De, C.S. Tiwary, A.N. Gupta, T. Singh, A. Chandra, Hierarchical cage-frame type nanostructure of CeO2 for bio sensing applications: From glucose to protein detection, Nanotechnology. 32 (2021) 025504. https://doi.org/10.1088/1361-6528/abb8a8.
329. A.H.C. Hart, P.S. Owuor, J. Hamel, S. Bhowmik, S.A.S. Asif, A.X. Gentles, S. Ozden, T. Tsafack, K. Keyshar, R. Mital, J. Hurst, R. Vajtai, C.S. Tiwary, P.M. Ajayan, Ultra-low density three-dimensional nano-silicon carbide architecture with high temperature resistance and mechanical strength, Carbon N. Y. 164 (2020) 143–149. https://doi.org/10.1016/j.carbon.2020.03.045.
330. N.K. Katiyar, S. Nellaiappan, R. Kumar, K.D. Malviya, K.G. Pradeep, A.K. Singh, S. Sharma, C.S. Tiwary, K. Biswas, Formic acid and methanol electro-oxidation and counter hydrogen production using nano high entropy catalyst, Mater. Today Energy. 16 (2020) 100393. https://doi.org/10.1016/j.mtener.2020.100393.
331. O.K. Park, P.S. Owuor, Y.M. Jaques, D.S. Galvao, N.H. Kim, J.H. Lee, C.S. Tiwary, P.M. Ajayan, Hexagonal boron nitride-carbon nanotube hybrid network structure for enhanced thermal, mechanical and electrical properties of polyimide nanocomposites, Compos. Sci. Technol. 188 (2020) 107977. https://doi.org/10.1016/j.compscitech.2019.107977.
332. S. Nellaiappan, N.K. Katiyar, R. Kumar, A. Parui, K.D. Malviya, K.G. Pradeep, A.K. Singh, S. Sharma, C.S. Tiwary, K. Biswas, High-Entropy Alloys as Catalysts for the CO2 and CO Reduction Reactions: Experimental Realization, ACS Catal. 10 (2020) 3658–3663. https://doi.org/10.1021/acscatal.9b04302.
333. K.M.B. Urs, N.K. Katiyar, R. Kumar, K. Biswas, A.K. Singh, C.S. Tiwary, V. Kamble, Multi-component (Ag-Au-Cu-Pd-Pt) alloy nanoparticle-decorated p-type 2D-molybdenum disulfide (MoS2) for enhanced hydrogen sensing, Nanoscale. 12 (2020) 11830–11841. https://doi.org/10.1039/d0nr02177f.
334. A.C. Chipara, G. Brunetto, S. Ozden, H. Haspel, P. Kumbhakar, Á. Kukovecz, Z. Kónya, R. Vajtai, M. Chipara, D.S. Galvao, C.S. Tiwary, P.M. Ajayan, Nature inspired solid-liquid phase amphibious adhesive, Soft Matter. 16 (2020) 5854–5860. <https://doi.org/10.1039/d0sm00105h>.
335. J. Zhang, T. Zhu, Y. Wang, J. Cui, J. Sun, J. Yan, Y. Qin, Y. Zhang, J. Wu, C.S. Tiwary, P.M. Ajayan, Y. Wu, 3D carbon coated NiCo2S4 nanowires doped with nitrogen for electrochemical energy storage and conversion, J. Colloid Interface Sci. 556 (2019) 449–457. https://doi.org/10.1016/j.jcis.2019.08.087.
336. K.D. Malviya, E.F. Oliveira, P.A.S. Autreto, P.M. Ajayan, D.S. Galvão, C.S. Tiwary, K. Chattopadhyay, Mixing the immiscible through high-velocity mechanical impacts: An experimental and theoretical study, J. Phys. D. Appl. Phys. 52 (2019) 445304. https://doi.org/10.1088/1361-6463/ab36d1.
337. N. Lertcumfu, F.N. Sayed, S.N. Shirodkar, S. Radhakrishnana, A. Mishra, G. Rujijanagul, A.K. Singh, B.I. Yakobson, C.S. Tiwary, P.M. Ajayan, Structure-Dependent Electrical and Magnetic Properties of Iron Oxide Composites, Phys. Status Solidi Appl. Mater. Sci. 216 (2019) 1801004. https://doi.org/10.1002/pssa.201801004.
338. S. Bhowmick, S. Ozden, R.A. Bizão, L.D. Machado, S.A.S. Asif, N.M. Pugno, D.S. Galvão, C.S. Tiwary, P.M. Ajayan, High temperature quasistatic and dynamic mechanical behavior of interconnected 3D carbon nanotube structures, Carbon N. Y. 142 (2019) 291–299. https://doi.org/10.1016/j.carbon.2018.09.075.
339. N.K. Katiyar, K. Biswas, C.S. Tiwary, L.D. Machado, R.K. Gupta, Stabilization of a Highly Concentrated Colloidal Suspension of Pristine Metallic Nanoparticles, Langmuir. 35 (2019) 2668–2673. https://doi.org/10.1021/acs.langmuir.8b03401.
340. Y. Li, P.S. Owuor, Z. Dai, Q. Xu, R. V. Salvatierra, S. Kishore, R. Vajtai, J.M. Tour, J. Lou, C.S. Tiwary, P.M. Ajayan, Strain-controlled optical transmittance tuning of three-dimensional carbon nanotube architectures, J. Mater. Chem. C. 7 (2019) 1927–1933. <https://doi.org/10.1039/c8tc05747h>.
341. P. Moitra, H.M. Gonnermann, B.F. Houghton, C.S. Tiwary, Fragmentation and Plinian eruption of crystallizing basaltic magma, Earth Planet. Sci. Lett. 500 (2018) 97–104. https://doi.org/10.1016/j.epsl.2018.08.003.
342. N. Kumar, C.S. Tiwary, K. Biswas, Preparation of nanocrystalline high-entropy alloys via cryomilling of cast ingots, J. Mater. Sci. 53 (2018) 13411–13423. https://doi.org/10.1007/s10853-018-2485-z.
343. C. Lee, S. Ozden, C.S. Tewari, O.K. Park, R. Vajtai, K. Chatterjee, P.M. Ajayan, MoS2–Carbon Nanotube Porous 3 D Network for Enhanced Oxygen Reduction Reaction, ChemSusChem. 11 (2018) 2960–2966. https://doi.org/10.1002/cssc.201800982.
344. S. Sridhar, C.S. Tiwary, B. Sirota, S. Ozden, K. Kalaga, W. Choi, R. Vajtai, K. Kordas, P.M. Ajayan, One Step Process for Infiltration of Magnetic Nanoparticles into CNT Arrays for Enhanced Field Emission, Adv. Mater. Interfaces. 5 (2018) 1701631. https://doi.org/10.1002/admi.201701631.
345. M.A. Kabbani, V. Kochat, S. Bhowmick, M. Soto, A. Som, K.R. Krishnadas, C.F. Woellner, Y.M. Jaques, E. V. Barrera, S. Asif, R. Vajtai, T. Pradeep, D.S. Galvão, A.T. Kabbani, C.S. Tiwary, P.M. Ajayan, Consolidation of functionalized graphene at ambient temperature via mechano-chemistry, Carbon N. Y. 134 (2018) 491–499. https://doi.org/10.1016/j.carbon.2018.03.049.
346. S. Vinayasree, T.S. Nitha, C.S. Tiwary, P.M. Ajayan, P.A. Joy, M.R. Anantharaman, Magnetically tunable liquid dielectric with giant dielectric permittivity based on core-shell superparamagnetic iron oxide, Nanotechnology. 29 (2018) 265707. https://doi.org/10.1088/1361-6528/aabc4e.
347. R. Koizumi, S. Ozden, A. Samanta, A.P.P. Alves, A. Mishra, G. Ye, G.G. Silva, R. Vajtai, A.K. Singh, C.S. Tiwary, P.M. Ajayan, Origami-Inspired 3D Interconnected Molybdenum Carbide Nanoflakes, Adv. Mater. Interfaces. 5 (2018) 1701113. https://doi.org/10.1002/admi.201701113.
348. M.M. Devi, N. Dolai, S. Sreehala, Y.M. Jaques, R.S.K. Mishra, D.S. Galvao, C.S. Tiwary, S. Sharma, K. Biswas, Morphology controlled graphene-alloy nanoparticle hybrids with tunable carbon monoxide conversion to carbon dioxide, Nanoscale. 10 (2018) 8840–8850. <https://doi.org/10.1039/c7nr09688g>.
349. J. WU, Metal-free Catalysts For Converting Carbon Dioxide Into Hydrocarbons And Oxygenates, WO2017197167A1, 2017.
350. S. Patra, D. Verma, A.K. Kole, C.S. Tiwary, D. Kundu, S. Chaudhuri, P. Kumbhakar, Optical, structural properties and antibacterial activities of uncapped and HMT capped ZnO nanoparticles, Mater. Today Commun. 12 (2017) 133–145. https://doi.org/10.1016/j.mtcomm.2017.07.003.
351. S. Ozden, I.G. MacWan, P.S. Owuor, S. Kosolwattana, P.A.S. Autreto, S. Silwal, R. Vajtai, C.S. Tiwary, A.D. Mohite, P.K. Patra, P.M. Ajayan, Bacteria as Bio-Template for 3D Carbon Nanotube Architectures, Sci. Rep. 7 (2017) 9855. https://doi.org/10.1038/s41598-017-09692-2.
352. P.S. Owuor, S. Hiremath, A.C. Chipara, R. Vajtai, J. Lou, D.R. Mahapatra, C.S. Tiwary, P.M. Ajayan, Nature Inspired Strategy to Enhance Mechanical Properties via Liquid Reinforcement, Adv. Mater. Interfaces. 4 (2017) 1700240. https://doi.org/10.1002/admi.201700240.
353. S. Ozden, T. Tsafack, P.S. Owuor, Y. Li, A.S. Jalilov, R. Vajtai, C.S. Tiwary, J. Lou, J.M. Tour, A.D. Mohite, P.M. Ajayan, Chemically interconnected light-weight 3D-carbon nanotube solid network, Carbon N. Y. 119 (2017) 142–149. https://doi.org/10.1016/j.carbon.2017.03.086.
354. S. Bhowmick, C. Sekhar Tiwary, S.A.S. Asif, P.M. Ajayan, In Situ Study of High-Temperature Mechanical Properties of Carbon Nanotube Scaffolds , Microsc. Microanal. 23 (2017) 782–783. https://doi.org/10.1017/s1431927617004573.
355. P.S. Owuor, C.S. Tiwary, R. Koizumi, M. Soto, A.C. Hart, E. V. Barrera, R. Vajtai, J. Lou, P.M. Ajayan, Self-Stiffening Behavior of Reinforced Carbon Nanotubes Spheres, Adv. Eng. Mater. 19 (2017) 1600756. https://doi.org/10.1002/adem.201600756.
356. A.H.C. Hart, R. Koizumi, J. Hamel, P.S. Owuor, Y. Ito, S. Ozden, S. Bhowmick, S.A. Syed Amanulla, T. Tsafack, K. Keyshar, R. Mital, J. Hurst, R. Vajtai, C.S. Tiwary, P.M. Ajayan, Velcro-Inspired SiC Fuzzy Fibers for Aerospace Applications, ACS Appl. Mater. Interfaces. 9 (2017) 13742–13750. https://doi.org/10.1021/acsami.7b01378.
357. P. Kumbhakar, S. Biswas, C.S. Tiwary, P. Kumbhakar, Near white light emission and enhanced photocatalytic activity by tweaking surface defects of coaxial ZnO@ZnS core-shell nanorods, J. Appl. Phys. 121 (2017) 144301. https://doi.org/10.1063/1.4980011.
358. C.S. Tiwary, S. Bhowmick, A. Prakash, R. Chakrabarti, K. Biswas, K. Chattopadhyay, Ferromagnetism in α-Mn nanorods, J. Appl. Phys. 121 (2017) 084304. https://doi.org/10.1063/1.4977062.
359. P.S. Owuor, Y. Yang, T. Kaji, R. Koizumi, S. Ozden, R. Vajtai, J. Lou, E.S. Penev, B.I. Yakobson, C.S. Tiwary, P.M. Ajayan, Enhancing Mechanical Properties of Nanocomposites Using Interconnected Carbon Nanotubes (iCNT) as Reinforcement, Adv. Eng. Mater. 19 (2017) 1600499. https://doi.org/10.1002/adem.201600499.
360. P.S. Owuor, T. Tsafack, H.Y. Hwang, O.K. Park, S. Ozden, S. Bhowmick, S.A. Syed Amanulla, R. Vajtai, J. Lou, C.S. Tiwary, P.M. Ajayan, Role of Atomic Layer Functionalization in Building Scalable Bottom-Up Assembly of Ultra-Low Density Multifunctional Three-Dimensional Nanostructures, ACS Nano. 11 (2017) 806–813. https://doi.org/10.1021/acsnano.6b07249.
361. A.C. Chipara, P.S. Owuor, S. Bhowmick, G. Brunetto, S.A.S. Asif, M. Chipara, R. Vajtai, J. Lou, D.S. Galvao, C.S. Tiwary, P.M. Ajayan, Structural Reinforcement through Liquid Encapsulation, Adv. Mater. Interfaces. 4 (2017) 1600781. <https://doi.org/10.1002/admi.201600781>.
362. R. Koizumi, A.H.C. Hart, G. Brunetto, S. Bhowmick, P.S. Owuor, J.T. Hamel, A.X. Gentles, S. Ozden, J. Lou, R. Vajtai, S.A.S. Asif, D.S. Galvão, C.S. Tiwary, P.M. Ajayan, Mechano-chemical stabilization of three-dimensional carbon nanotube aggregates, Carbon N. Y. 110 (2016) 27–33. https://doi.org/10.1016/j.carbon.2016.08.085.
363. P. Suvarnaphaet, C.S. Tiwary, J. Wetcharungsri, S. Porntheeraphat, R. Hoonsawat, P.M. Ajayan, I.M. Tang, P. Asanithi, Blue photoluminescent carbon nanodots from limeade, Mater. Sci. Eng. C. 69 (2016) 914–921. https://doi.org/10.1016/j.msec.2016.07.075.
364. A.K. Kole, S. Biswas, C.S. Tiwary, P. Kumbhakar, A facile synthesis of graphene oxide–ZnS/ZnO nanocomposites and observations of thermal quenching of visible photoluminescence emission and nonlinear optical properties, J. Lumin. 179 (2016) 211–221. https://doi.org/10.1016/j.jlumin.2016.06.061.
365. S. Ozden, L.D. Machado, C. Tiwary, P.A.S. Autreto, R. Vajtai, E. V. Barrera, D.S. Galvao, P.M. Ajayan, Ballistic Fracturing of Carbon Nanotubes, ACS Appl. Mater. Interfaces. 8 (2016) 24819–24825. https://doi.org/10.1021/acsami.6b07547.
366. A. Pramanik, A.K. Kole, R.N. Krishnaraj, S. Biswas, C.S. Tiwary, P. Varalakshmi, S.K. Rai, B.A. Kumar, P. Kumbhakar, A Novel Technique of Synthesis of Highly Fluorescent Carbon Nanoparticles from Broth Constituent and In-vivo Bioimaging of C. elegans, J. Fluoresc. 26 (2016) 1541–1548. https://doi.org/10.1007/s10895-016-1854-8.
367. S. Ozden, C.S. Tiwary, J. Yao, G. Brunetto, S. Bhowmick, S. Asif, R. Vajtai, P.M. Ajayan, Highly ordered carbon-based nanospheres with high stiffness, Carbon N. Y. 105 (2016) 144–150. https://doi.org/10.1016/j.carbon.2016.04.023.
368. M.A. Kabbani, C.S. Tiwary, A. Som, K.R. Krishnadas, P.A.S. Autreto, S. Ozden, K. Keyshar, K. Hackenberg, A.C. Chipara, D.S. Galvao, R. Vajtai, A.T. Kabbani, T. Pradeep, P.M. Ajayan, A generic approach for mechano-chemical reactions between carbonnanotubes of different functionalities, Carbon N. Y. 104 (2016) 196–202. https://doi.org/10.1016/j.carbon.2016.02.094.
369. S. Ozden, G. Brunetto, N.S. Karthiselva, D.S. Galvão, A. Roy, S.R. Bakshi, C.S. Tiwary, P.M. Ajayan, Controlled 3D Carbon Nanotube Structures by Plasma Welding, Adv. Mater. Interfaces. 3 (2016) 1500755. https://doi.org/10.1002/admi.201500755.
370. S. Biswas, A.K. Kole, C.S. Tiwary, P. Kumbhakar, Observation of Size-Dependent Electron–Phonon Scattering and Temperature-Dependent Photoluminescence Quenching in Triangular-Shaped Silver Nanoparticles, Plasmonics. 11 (2016) 593–600. https://doi.org/10.1007/s11468-015-0072-6.
371. S. Ozden, Y. Yang, C.S. Tiwary, S. Bhowmick, S. Asif, E.S. Penev, B.I. Yakobson, P.M. Ajayan, Indentation Tests Reveal Geometry-Regulated Stiffening of Nanotube Junctions, Nano Lett. 16 (2016) 232–236. https://doi.org/10.1021/acs.nanolett.5b03607.
372. C.S. Tiwary, R.J. Mudakavi, S. Kishore, S. Kashyap, R. Elumalai, D. Chakravortty, A.M. Raichur, K. Chattopadhyay, Magnetic iron nanoparticles for in vivo targeted delivery and as biocompatible contrast agents, RSC Adv. 6 (2016) 114344–114352. https://doi.org/10.1039/c6ra14817d.
373. S. Vinod, C.S. Tiwary, L.D. MacHado, S. Ozden, R. Vajtai, D.S. Galvao, P.M. Ajayan, Synthesis of ultralow density 3D graphene-CNT foams using a two-step method, Nanoscale. 8 (2016) 15857–15863. https://doi.org/10.1039/c6nr04252j.
374. C.S. Tiwary, D. Vishnu, A.K. Kole, J. Brahmanandam, D.R. Mahapatra, P. Kumbhakar, K. Chattopadhyay, Stabilization of the high-temperature and high-pressure cubic phase of ZnO by temperature-controlled milling, J. Mater. Sci. 51 (2016) 126–137. <https://doi.org/10.1007/s10853-015-9394-1>.
375. P.P. Sharma, J. Wu, R.M. Yadav, M. Liu, C.J. Wright, C.S. Tiwary, B.I. Yakobson, J. Lou, P.M. Ajayan, X.D. Zhou, Nitrogen-Doped Carbon Nanotube Arrays for High-Efficiency Electrochemical Reduction of CO2: On the Understanding of Defects, Defect Density, and Selectivity, Angew. Chemie - Int. Ed. 54 (2015) 13701–13705. https://doi.org/10.1002/anie.201506062.
376. A. Nandy, C.S. Tiwary, A. Dutta, K. Chattopadhyay, S.K. Pradhan, Effect of Manganese (II) Oxide on microstructure and ionic transport properties of nanostructured cubic zirconia, Electrochim. Acta. 170 (2015) 360–368. https://doi.org/10.1016/j.electacta.2015.04.175.
377. S. Mohanty, S. Samal, A. Tazuddin, C.S. Tiwary, N.P. Gurao, K. Biswas, Effect of processing route on phase stability in equiatomic multicomponent Ti20Fe20Ni20Co20Cu20 high entropy alloy, Mater. Sci. Technol. (United Kingdom). 31 (2015) 1214–1222. https://doi.org/10.1179/1743284715Y.0000000024.
378. M.A. Kabbani, C.S. Tiwary, P.A.S. Autreto, G. Brunetto, A. Som, K.R. Krishnadas, S. Ozden, K.P. Hackenberg, Y. Gong, D.S. Galvao, R. Vajtai, A.T. Kabbani, T. Pradeep, P.M. Ajayan, Ambient solid-state mechano-chemical reactions between functionalized carbon nanotubes, Nat. Commun. 6 (2015) 7291. https://doi.org/10.1038/ncomms8291.
379. R.M. Yadav, J. Wu, R. Kochandra, L. Ma, C.S. Tiwary, L. Ge, G. Ye, R. Vajtai, J. Lou, P.M. Ajayan, Carbon Nitrogen Nanotubes as Efficient Bifunctional Electrocatalysts for Oxygen Reduction and Evolution Reactions, ACS Appl. Mater. Interfaces. 7 (2015) 11991–12000. https://doi.org/10.1021/acsami.5b02032.
380. J. Wu, R.M. Yadav, M. Liu, P.P. Sharma, C.S. Tiwary, L. Ma, X. Zou, X.D. Zhou, B.I. Yakobson, J. Lou, P.M. Ajayan, Achieving highly efficient, selective, and stable CO2 reduction on nitrogen-doped carbon nanotubes, ACS Nano. 9 (2015) 5364–5371. https://doi.org/10.1021/acsnano.5b01079.
381. S. Ozden, C.S. Tiwary, A.H.C. Hart, A.C. Chipara, R. Romero-Aburto, M.T.F. Rodrigues, J. Taha-Tijerina, R. Vajtai, P.M. Ajayan, Density Variant Carbon Nanotube Interconnected Solids, Adv. Mater. 27 (2015) 1842–1850. https://doi.org/10.1002/adma.201404995.
382. S. Chakraborty, C.S. Tiwary, P. Kumbhakar, Simple chemical aqueous synthesis of dahlia nanoflower consisting of finger-like ZnO nanorods and observation of stable ultraviolet photoluminescence emission, J. Phys. Chem. Solids. 78 (2015) 84–89. https://doi.org/10.1016/j.jpcs.2014.10.022.
383. S. Ozden, T.N. Narayanan, C.S. Tiwary, P. Dong, A.H.C. Hart, R. Vajtai, P.M. Ajayan, 3D macroporous solids from chemically cross-linked carbon nanotubes, Small. 11 (2015) 688–693. <https://doi.org/10.1002/smll.201402127>.
384. A. Kanti Kole, C. Sekhar Tiwary, P. Kumbhakar, Effect of thermal annealing on dual photoluminescence emission characteristics of chemically synthesized uncapped Mn2+ doped ZnS quantum dots, J. Lumin. 155 (2014) 359–367. https://doi.org/10.1016/j.jlumin.2014.07.004.
385. S. Sridhar, C. Tiwary, S. Vinod, J.J. Taha-Tijerina, S. Sridhar, K. Kalaga, B. Sirota, A.H.C. Hart, S. Ozden, R.K. Sinha, Harsh, R. Vajtai, W. Choi, K. Kordás, P.M. Ajayan, Field emission with ultralow turn on voltage from metal decorated carbon nanotubes, ACS Nano. 8 (2014) 7763–7770. https://doi.org/10.1021/nn500921s.
386. C.S. Tiwary, S. Saha, P. Kumbhakar, K. Chattopadhyay, Observation of combined effect of temperature and pressure on cubic to hexagonal phase transformation in ZnS at the nanoscale, Cryst. Growth Des. 14 (2014) 4240–4246. https://doi.org/10.1021/cg500657e.
387. S. Ozden, P.A.S. Autreto, C.S. Tiwary, S. Khatiwada, L. Machado, D.S. Galvao, R. Vajtai, E. V. Barrera, P. M. Ajayan, Unzipping carbon nanotubes at high impact, Nano Lett. 14 (2014) 4131–4137. https://doi.org/10.1021/nl501753n.
388. J.J. Taha-Tijerina, T.N. Narayanan, C.S. Tiwary, K. Lozano, M. Chipara, P.M. Ajayan, Nanodiamond-based thermal fluids, ACS Appl. Mater. Interfaces. 6 (2014) 4778–4785. https://doi.org/10.1021/am405575t.
389. S. Sridhar, L. Ge, C.S. Tiwary, A.C. Hart, S. Ozden, K. Kalaga, S. Lei, S. V. Sridhar, R.K. Sinha, H. Harsh, K. Kordas, P.M. Ajayan, R. Vajtai, Enhanced field emission properties from cnt arrays synthesized on inconel superalloy, ACS Appl. Mater. Interfaces. 6 (2014) 1986–1991. https://doi.org/10.1021/am405026y.
390. A. Kanti Kole, C. Sekhar Tiwary, P. Kumbhakar, Morphology controlled synthesis of wurtzite ZnS nanostructures through simple hydrothermal method and observation of white light emission from ZnO obtained by annealing the synthesized ZnS nanostructures, J. Mater. Chem. C. 2 (2014) 4338–4346. <https://doi.org/10.1039/c4tc00091a>.
391. C.S. Tiwary, S. Kashyap, K. Biswas, K. Chattopadhyay, Synthesis of pure iron magnetic nanoparticles in large quantity, J. Phys. D. Appl. Phys. 46 (2013) 385001. https://doi.org/10.1088/0022-3727/46/38/385001.
392. C.S. Tiwary, A. Verma, S. Kashyp, K. Biswas, K. Chattopadhyay, Preparation of freestanding Zn nanocrystallites by combined milling at cryogenic and room temperatures, Metall. Mater. Trans. A Phys. Metall. Mater. Sci. 44 (2013) 1917–1924. https://doi.org/10.1007/s11661-012-1508-7.
393. A.K. Kole, C.S. Tiwary, P. Kumbhakar, Room temperature synthesis of Mn2+ doped ZnS d-dots and observation of tunable dual emission: Effects of doping concentration, temperature, and ultraviolet light illumination, J. Appl. Phys. 113 (2013) 114308. https://doi.org/10.1063/1.4795779.
394. S. Chakraborty, C.S. Tiwary, A.K. Kole, P. Kumbhakar, K. Chattopadhyay, A simple method of synthesis and optical properties of Mn doped ZnO nanocups, Mater. Lett. 91 (2013) 379–382. https://doi.org/10.1016/j.matlet.2012.10.034.
395. A.K. Kole, C.S. Tiwary, P. Kumbhakar, Ethylenediamine assisted synthesis of wurtzite zinc sulphide nanosheets and porous zinc oxide nanostructures: Near white light photoluminescence emission and photocatalytic activity under visible light irradiation, CrystEngComm. 15 (2013) 5515–5525. <https://doi.org/10.1039/c3ce40531a>.
396. K. Barai, C.S. Tiwary, P.P. Chattopadhyay, K. Chattopadhyay, Synthesis of free standing nanocrystalline Cu by ball milling at cryogenic temperature, Mater. Sci. Eng. A. 558 (2012) 52–58. <https://doi.org/10.1016/j.msea.2012.07.059>.
397. C.S. Tiwary, A. Verma, K. Biswas, A.K. Mondal, K. Chattopadhyay, Preparation of ultrafine CsCl crystallites by combined cryogenic and room temperature ball milling, Ceram. Int. 37 (2011) 3677–3686. https://doi.org/10.1016/j.ceramint.2011.06.029.
398. C. Sekhar Tiwary, C. Srivastava, P. Kumbhakar, Onset of sphalerite to wurtzite transformation in ZnS nanoparticles, J. Appl. Phys. 110 (2011) 034908. https://doi.org/10.1063/1.3622625.
399. A. Verma, K. Biswas, C.S. Tiwary, A.K. Mondal, K. Chattopadhyay, Combined cryo and room-temperature ball milling to produce ultrafine halide crystallites, Metall. Mater. Trans. A Phys. Metall. Mater. Sci. 42 (2011) 1127–1137. <https://doi.org/10.1007/s11661-010-0490-1>.
400. C.S. Tiwary, P. Kumbhakar, A.K. Mondal, A.K. Mitra, Synthesis and enhanced green photoluminescence emission from BCT ZnS nanocrystals, Phys. Status Solidi Appl. Mater. Sci. 207 (2010) 1874–1879. https://doi.org/10.1002/pssa.200925341.
401. M. Fayaz, C.S. Tiwary, P.T. Kalaichelvan, R. Venkatesan, Blue orange light emission from biogenic synthesized silver nanoparticles using Trichoderma viride, Colloids Surfaces B Biointerfaces. 75 (2010) 175–178. <https://doi.org/10.1016/j.colsurfb.2009.08.028>.
402. M. Chattopadhyay, P. Kumbhakar, C.S. Tiwary, A.K. Mitra, U. Chatterjee, T. Kobayashi, Three-photon-induced four-photon absorption and nonlinear refraction in ZnO quantum dots, Opt. Lett. 34 (2009) 3644. https://doi.org/10.1364/ol.34.003644.
403. R. Sarkar, C.S. Tiwary, P. Kumbhakar, A.K. Mitra, Enhanced visible light emission from Co2+ doped ZnS nanoparticles, Phys. B Condens. Matter. 404 (2009) 3855–3858. https://doi.org/10.1016/j.physb.2009.07.106.
404. C.S. Tiwary, P. Kumbhakar, A.K. Mitra, K. Chattopadhyay, Synthesis of wurtzite-phase ZnS nanocrystal and its optical properties, J. Lumin. 129 (2009) 1366–1370. https://doi.org/10.1016/j.jlumin.2009.07.004.
405. M. Chattopadhyay, P. Kumbhakar, R. Sarkar, A.K. Mitra, Enhanced three-photon absorption and nonlinear refraction in ZnS and Mn2+ doped ZnS quantum dots, Appl. Phys. Lett. 95 (2009) 163115. https://doi.org/10.1063/1.3254186.
406. M. Chattopadhyay, P. Kumbhakar, C.S. Tiwary, R. Sarkar, A.K. Mitra, U. Chatterjee, Multiphoton absorption and refraction in Mn2+ doped ZnS quantum dots, J. Appl. Phys. 105 (2009) 024313. <https://doi.org/10.1063/1.3072678>.
407. C.S. Tiwary, R. Sarkar, P. Kumbhakar, A.K. Mitra, Synthesis and optical characterization of monodispersed Mn2+ doped CdS nanoparticles, Phys. Lett. Sect. A Gen. At. Solid State Phys. 372 (2008) 5825–5830. https://doi.org/10.1016/j.physleta.2008.07.036.
408. R. Sarkar, C.S. Tiwary, P. Kumbhakar, S. Basu, A.K. Mitra, Yellow-orange light emission from Mn2+-doped ZnS nanoparticles, Phys. E Low-Dimensional Syst. Nanostructures. 40 (2008) 3115–3120. https://doi.org/10.1016/j.physe.2008.04.013.