Brief Biodata

Name: Dr. Nahar Singh

Designation:	Sr. Principal Scientist
DP No. and Name:	Head BND Div (5.0) & Head BND Outreach Sub Div. (5.02)
DU No. and Name:	5.0, Bharatiya Nirdeshak Dravya
Email:	headband@nplindia.org, bnd-outreach@nplindia.org naharsingh@nplindia.org
Date of Joining CSIR-NPL:	10-04-2000
Phone	01145608373, 01145609221

Research Area/ Interest

Reference materials, Water purification, Nanomaterial Synthesis, UV-Vis, and Atomic Absorption/Emission Spectroscopy

Educational Qualifications

Degree	Subject	University/ Institute	Year
MBA	Human resource Management	Punjab Technical University	2011
PhD	Chemistry	M.L. Sukhadiya University, Udaipur (Raj)	1997
M. Sc	Physical Chemistry	Meerut University	1988
B.Sc	Chemistry, Zoology, Botany	Meerut University	1986

Academic / Research Experience

Grade/ Post	Institute	Duration		Research Field
		From	To	
Sr. Principal Scientist	CSIR-NPL Delhi	10-04-2017	Till date	Reference materials (BND), Metals Recovery from process waste, Water purification, Materials characterization
Principal Scientist	CSIR-NPL Delhi	10.04.2012	10.04.2017	Reference materials (BND), Metals Recovery from process waste, Water purification
Sr. Scientist	CSIR-NPL Delhi	10.04.2008	10.04.2012	Reference materials (BND), Metals Recovery from process waste, Water purification Reference materials, Materials characterization
Scientist	CSIR-NPL Delhi	10.04.2004	10.04.2008	Reference materials (BND), Metals Recovery from process waste, Water purification Reference

				materials, Materials characterization
Jr Scientist	CSIR-NPL Delhi	10.04.2000	10.04.2004	Reference materials (BND), Metals Recovery from process waste, Water purification Reference materials, Materials characterization
Analyst	HZL Ltd, RD Mines, Dariba, Rajsamand, Rajasthan	22.08.1989	5.04.2000	Classical Gravimetric, titremetric, instrumental techniques for characterization of ores, minerals, water and chemicals

No. of Publications: 181nos

No. of Publications in SCI Journals	No. of Publications in non-SCI Journals	No. of Publications in Conference Proceedings	Books chapters	Total
90	03	82	6	181

Selected Publications: 34 nos

1. Sodium docusate surface modified dispersible and powder zinc peroxide formulation: An adsorbent for the effective and fast removal of Crystal Violet dye, an emerging wastewater contaminant
Sachin, Deepak Joishar, Netra Pal Singh, Varathan, Ezhilselvi and **Nahar Singh**, Journal of **ACS Omega**, August 2021.

2. Development of a pH-sensitive functionalized metal organic framework*:* in vitro study for simultaneous delivery of doxorubicin and cyclophosphamide in breast cancer
Ragini Singh, Binayak Kumar, Ram Krishna Sahu, Soni Kumari, Chandan Bhogendra Jha, **Nahar Singh**, Rashi Mathur and Suresh T. Hedau, **RSC Advances**, Issue 53,2021.

3. Rapid adsorption of arsenate from water on a novel hybrid of zirconia oxide anchored rGO functionalised carbon foam;
Pinki Rani Agrawal, **Nahar Singh**, Ravi Kumar, Kushagra Yadav, Sanjay R. Dhakate; **Colloid and Interface Science Communications**; 40(2021)100350.

4. An overview on polymeric carbon nitride assisted photocatalytic CO_2 reduction: strategically manoeuvring solar to fuel conversion efficiency
Pardeep Singh, Abhinandan Kumar; Vijay Kumar Thakur; Pankaj Raizada; Aftab Aslam Parwaz Khan; Vipin Saini and **Nahar Singh**; Chemical Engineering Science, 230, 116219, 2021,

5. The removal of pentavalent arsenic by graphite intercalation compound functionalized carbon foam from contaminated water
Pinki Rani Agarwal, **Nahar Singh**, saroj Kumari and Sanjay R. Dhakate, **Journal of Hazardous Materials**, 377, 274-283 , May 2019.

6. Facile chemical synthesis and novel application of zinc oxysulphide nanomaterial for instant and superior adsorption of Arsenic from water
Himani Uppal, Sneha Chawla, Amish G. Joshi, Divi Haranath, Narayanasvamy Vijayan, **Nahar Singh**; Journal of Cleaner production, 208, 458-469, October 2018.

7. Multiwall Carbon Nanotube Embedded Phenolic Resin-Based Carbon Foam for the Removal of As (V) from Contaminated Water"
Pinki Agrawal, **Nahar Singh**, Saroj Kumari, Dhakate, Sanjay; **Materials Research Express**; 5(3), 10.1088/2053-1591/aaaf7c, February 5, 2018.

8. Determination of trace elements in high purity silver granules using sector field inductively coupled plasma mass spectrometry
S. Swarupa Tripathy, Swati, Rajiv K. Saxena and **Nahar Singh; Journal of Testing and Evaluation (ASTM)**, DOI: 10.1520/JTE20160417, January 12, 2018.

9. Removal of Brilliant Green dye from waste water using Zinc peroxide-Charcoal composite
Sneha Chawla, Himani Uppal, Mohit Yadav, Dinesh Singh, **Nahar Singh**; Advanced Material letters**,** 8(10) 944-1003 , October 2017**.**

10. Iron acquisition in maize (Zea maysL.) using Pseudomonassiderophore
Stuti Sah, **Nahar Singh** and Rajni Singh; **3 Biotech** (2017) 7:121; DOI 10.1007/s13205-017-0772-z, 31 May 2017.

11. Chemical characteristics of trace metals in PM_{10} and their concentrated weighted trajectory analysis at Central Delhi, India
Subhash Chandra , Monika J. Kulshrestha , Ruchi Singh and **Nahar Singh;** Journal of Environmental Sciences; Volume 55, 184-196, May 2017.

12. Zinc peroxide nanomaterial as an adsorbent for removal of Congo red dye from waste water
Sneha Chawla, Himani Uppal, Mohit Yadav, Nupur Bahadur, **Nahar Singh**; **Ecotoxicology and Environmental Safety**; 135, 68-74, January 2017.

13. Study of cyanide removal from contaminated water using zinc peroxide nanomaterial
Himani uppal, S. Swarupa Ttripathy, Sneha Chawla, Bharti Sharma, Manas K. Dalai, S.P. Singh, Sukhvir Singh, Nahar Singh; **Journal of Environmental Sciences**; Volume 55,2017,76-85; 2017.

14. Surface modified alumina compact: A potential material for decontamination of trivalent and hexavalent chromium and growth inhibitor of microbes from water
Himani Uppal, Nijhuma Kayal, Sneha Chawla, S. Swarupa Tripathy, Sonali Gupta, Rajni Singh, Bharti Sharma, **Nahar Singh**; Advanced Materials Letters, 8(5), 592-599, 2017.

15. Novel 3D lightweight carbon foam as an effective adsorbent for arsenic(v) removal from contaminated water
Pinki Rani Agrawal, Rajeev Kumar, Himani Uppal, **Nahar Singh**, Saroj Kumari and Sanjay R. Dhakate; **RSC Advances**; 36(6), 29899-29908, 2016.

16. Photocatalytic mineralization and degradation kinetics of ampicillin and oxytetracyline

antibiotics using graphene sand composite and chitosan supported BiOCl.
Bhanu Priya, Pooja Shandilya, Pankaj Raizada, Pankaj Thakur, **Nahar Singh**, and Pardeep Singh; **Journal of Molecular Catalysis A: Chemical**, 423, 400-413, 2016.

17. Adsorptional photocatalytic mineralization of oxytetracycline and ampicillin antibiotics using Bi2O3/BiOCl supported on graphene sand composite and chitosan
Bhanu Priya, Pankaj Raizada, **Nahar Singh**, Pankaj Thakur, Pardeep Singh, **Journal of Colloid and Interface Science**, 479, 271–283, June 2016.

18. Zinc peroxide functionalized synthetic graphite: An economical and efficient adsorbent for adsorption of arsenic (III) and (V).
Himani Uppal, Hemlata, Jai Tawale **Nahar Singh**, **Journal of Environmental Chemical Engineering**, 4, 2964-2975, June 2016.

19. Preliminary test of functionalized ZnO_2 against *Bipolaris sorokiniana* and other seed associated mycoflora for better wheat germination **Nahar Singh**, Ansuman Khandual, Prabhat K. Gupta and S.S. Vaish; **Research Journal of Biotechnology,** 11 (6), 59-72, June 2016.

20. An Efficient and Fast Process for the Removal of Trivalent and Hexavalent Chromium from Contaminated Water Using Zinc Peroxide Nanomaterial
Nahar Singh, Himani Uppal, Sneha Chawla, Sukhvir Singh, and Swarupa Tripathy; **Pharm Anal Acta** 6 (8): 412, 2015.

21. Graphene functionalized with 3-mercatopropionic acid capped zinc peroxide nanoparticles: A potential ferromagnetic material at room-temperature.
Prasun Ganguli, Ravinder K. Kotnala, Sukhvir Singh, Rajender P. Pant, **Nahar Singh**; **Carbon** 95: 428-433 Dec. 2015.

22. An in vitro comparison of effect on fracture strength, pH and calcium ion diffusion from various biomimetic materials when used for repair of simulated root resorption defects.
Chetna Dudega, Sonali Taneja, Manju Kumari, and **Nahar Singh**; **Journal of Conservative Dentistry** 18(4):279-83; July 2015.

23. Cerium functionalized PVA-Chitosan composite nanofibers for effective remediation of ultra-low concentrations of Hg (II) in water
Reena Sharma, **Nahar Singh**, Sangeeta Tiwari Sandeep Kumar Tiwari and Sanjay R. Dhakate' RSC Adv; 5, 16622–16630, 2015.

24. Anti-ematic drug delivery for cancer patients through electrospun composite nanofibers transdermal patch: in vitro study
Damanpreet Kaur, Ashish Gupta, **Nahar Singh** and Sanjay R. Dhakate; **Advanced Materials Letters;** 6(1), 33-39, 2015.

25. Electrospun Chitosan-Polyvinyl alcohol composite nanofibers loaded with Cerium for efficient removal of Arsenic from contaminated water
R. Sharma, **Nahar Singh**, A. Gupta, S. Tiwari, S.K.Tiwari and S.R. Dhakate; **J. Mater. Chem.** A, 2, 16669–16677; 2014.

26. A rugged, precise, and accurate gravimetry process for the determination of silver in various silver materials
Nahar Singh, S. Swarupa Tripathy, R.P. Pant, Rashmi and Prabhat K.Gupta; **Anal. Methods**, 6, 3682–3688, March 2014.

27. Quantifying uncertainty in measurement of mercury in suspended particulate matter by cold vapor technique using Atomic Absorption Spectrometry with hydride generator
Nahar Singh, V.N. Ojha, Daya Soni, Tarushee Ahuja and Ivo Leito; **Sprigerplus**, 2:453; DOI: 10.1186/2193-1801-2-453; Sept 2013.

28. Evaluation of purity with its uncertainty value in high purity lead stick by conventional and electro-gravimetric methods
Nahar Singh, Niranjan Singh, S. Swarupa Tripathy, Daya Soni, Khem Singh and Prabhat K. Gupta; **Chemistry Central Journal**; 7, 108, 2013.

29. A process for the selective removal of arsenic from contaminated water using acetate functionalized zinc oxide nanomaterials
Nahar Singh, S.P. Singh, Vinay Gupta, Harish Yadav, Rashmi, Tarushee Ahuja, and S. Swarupa Tripathy; **Environmental Progress & Sustainable Energy**; 32(4), 1023-1029, Dec 2013, doi.org/10.1002/ep.11698.

30. A rugged, precise and accurate gravimetry process for the determination of gold: an alternative to fire assay method
Nahar Singh; SpringerPlus; 1:14, 2012.

31. Comparative study of leaching of silver nanoparticles from fabric and effective effluent treatment
Aneesh Pasricha, Sant Lal Jangra, **Nahar Singh**, Neeraj Dilbaghi, K.N. Sood, Kanupriya Arora and Renu Pasricha; **Journal of Environmental Sciences**; 24(5), 852-859; May 2012.

32. ZnO decorated luminescent graphene as a potential gas sensor at room temperature
Gaurav Singh Anshul Choudhary, D. Haranath, Amish G. Joshi, **Nahar Singh**, Sukhvir Singh, Renu Pasricha; **Carbon**, 50, 385–394; 2012.

33. A Novel modified route for reduction of nitroarenes for the synthesis of pure, doped and composites of zinc oxide of nano sizes for various applications
Nahar Singh, Rashmi, D. Hraranath, Tarushee Ahuja, and Sukhvir Singh; **Journal of Colloid and Interface Science;** 369, 40–45; 2012.

34. Synthesis of optically active silica-coated NdF_3 core–shell nanoparticles
Anees A. Ansari, S.P. Singh, **Nahar Singh**, B.D. Malhotra; **Spectro chimica Acta Part A: Molecular and Biomolecular Spectroscopy**; 86, 432-436; Feb. 2012.

Patents: 07nos

1. **Process for preparing zinc peroxide nanoparticles** [0578-DEL 12Th March, 2010].
Inventors: **Nahar Singh**, Rashmi, Sukhvir Singh, Daya Soni, Renu Pasricha and Prabhat K. Gupta; **Filed in Country; USA; South Africa, Bangladesh and India. Publication No. USA: Pub No. US2013 0324673A,** Dec. 5, 2013.

2. **A process for improving water quality contaminated by pesticides**
Inventors: **Nahar Singh**, Suman Gupta, Sushree Swarupa Tripathy Rashmi, Sukhvir Singh, and Prabhat K. Gupta; **(IPMD CSIR- filing date; March 2013, 0042 NF 2013)** Patent office India filing date 23/07/2013, IN 2184 DEL 2013.

3. **An Antimicrobial agent and process for the preparation thereof**
   Inventors: Nahar Singh, Rajni Singh and Prabhat K. Gupta; **Filed in Country; India, (IPMD CSIR- filing date;** 049NF2014; Dated: 24-Feb-2014; IN: 1338 DEL2014.

4. **Uniform sized Aerogels phosphor: a commercial process for the preparation thereof.**
   Inventors: D. Haranath, **Nahar Singh,** and Sneha Chawla; IN: 60NF2016, 201611019355, filing date 6th June 2016 and **US 2017/0349445A1;** 07th Dec 2017.

5. **Sunlight sensitized blue long afterglow phosphor: a commercial process for the preparation thereof**
   Inventors: D. Haranath, G. Swati and **Nahar Singh;** NF 0002, 2018.

6. **A Microbial UVC Disinfection Casket:**
   Inventors: **Nahar Singh**, Dr. Rajesh, Mr Virendra Kumar Jaiswal, Dr. Parag Sharma, Dr. G. Sumana, Dr Anuj Krishna, Dr Radhakrishnan SR, Mr Devesh Kumar Shukla, Mr Anuj Purohit, Mr Shubham Rathore, Dr DK Aswal.**(202011021206; 20th May 2020).**

7. A UVC based ambient air microbial disinfector
   Inventors: **Nahar Singh**, Rajesh, Virender Kumar Jaiswal, Parag Sharma, S R Radhakrishnan, Gajjala Sumana, Devesh Kumar Shukla, Shankar G. Aggarwal, Khem Singh, Shiv Kumar Jaiswal, DK Aswal, Vijay Sharma, Sandeep Khichi and Mr Prashant Sharma; **46 NF 2021 dated 3/3/2021.**

Current Activities

NPL Being a National Metrology institute it is our responsibilities to provide traceability in chemical metrology based on IS unit. Presently I am heading Indian Reference Material (Bharatiya Nirdeshak Dravya) Division of CSIR-NPL. Under BND development program we have developed more than 120 Reference Materials (BND) related to chemical, Food, building material, petroleum, minerals and ores etc for calibration of analytical equipments in-house and in collaboration of Reference Material Producers. Apart of these, I am also involved in the synthesis of functionalized and intrinsic materials by various routes and further application as water purification. The other focus activity is related to consultancy to industries for improvement of industrial process, recovery of precious material from process waste etc.

Honour(s)/Award(s)/ Fellowship(s)

Nil

Contributions to AcSIR

I am also teaching Research Methodology course under AcSIR which covers; General safety and accident prevention guidelines, Good personnel safety practices, Laboratory safety practices (Do's and Don'ts), Fire safety principles and fire handling, Care in handling chemicals, Understanding materials safety data sheet (MSDS), Storing and indexing of materials &chemicals, Disposal of materials, chemicals and biological wastes , Principle and

applications of conventional and frontier tools and techniques for a gross understanding covering chemical sciences. Apart from these I am also guiding students who are registered in AcSIR for PhD program.

Membership of Professional Societies/ Institutions

Metrology Society of India.	Life Membership	2001-2017
Metrology Society of India.	Fellow Member	2017
Indian Aerosol Science and Technology Association	Life Membership	2003
Indian Society of Analytical Scientist –Delhi Chapter.	Life Membership	2004
Indian Society of Remote Sensing	Life Membership	2004
chemical division cell of BIS (Bureau of Indian Standard)	Member	2006-2014
NABL Assessor: ISO17025:2005	Life Member	2007
Research council member of NCCBM	Member	2016
General Council of Metal Handicrafts Service Centre (MHSC) Moradabad, U.P.	Member	2018

Any other Information

Nil