

Curriculum Vitae

Dr. Barsha Dash

Principal Scientist

Hydro & Electrometallurgy Department
CSIR-Institute of Minerals and Materials
Technology, Bhubaneswar, India
Email: barsha.dash@gmail.com



Qualifications

2012 PhD, Sambalpur University, India
2001 Masters, Sambalpur University, India
1999 Bachelor, Sambalpur University, India

Achievements

National Level Exams

1. Qualified CSIR-National Eligibility Test (LS) - Twice in June and December 2004
2. Qualified Graduation Aptitude Test of Engineering (GATE) in Chemistry-2005 with 93.55 percentile
3. Qualified CSIR-Senior Research Fellowship-2007

Awards

1. **Prof. Dayanidhi Pattnaik award-2010 from Orissa Chemical Society**
2. **Prof. G.B.Behera award for best PhD thesis-2012, from Orissa Chemical Society**
3. **“R.P Das Memorial Award”** in recognition of contribution to the field of Hydrometallurgy during the **“IIM Annual General Body meeting (IIM-AGBM)”** held on 7th Sep 2020.
4. Received **Commendation Award** from **Hindustan Petroleum** in **New Generation Ideation Contest-2023**
5. Featured in a Book **“SHE IS”** encompassing 75 Women in Chemistry published by Red dot foundation in association with Principal Scientific Advisor to the Govt of India and Royal Society of Chemistry, UK.

Membership in different Organizations

- Life member of Orissa Chemical Society
- Life Member of Material Research Society of India, **LMB2362**, Dt. 14.08.2015
- Life member of The Indian Institute of Metals (IIM), #58063, Dt. February 2020
- Life Member of Indian Institute of Chemical Engineers (IICHE), **LM73257**, Dt. 02.07.2022

Editorial Board member

1. SCIREA Journal of Materials
<http://www.scirea.org/journal/Materials>
2. Analytical Chemistry International
https://kemfo.org/index.php?option=com_content&view=article&id=48&Itemid=243

Guest Editor: Special Issue

Minerals: Adsorption of Cations and Anions on Mineral Surfaces”
<https://www.mdpi.com/si/150607>

Guidance and Training

PhD: 3 PhD students

MSc., B.Tech M.Tech: More than 20 students

Highest Downloaded/ top listed Paper

- Geetanjali Mishra, **Barsha Dash**, Sony Pandey, Layered double hydroxides: A brief review from fundamentals to application as evolving biomaterials, **Applied Clay Science**, 153, 2018, 172-186.
*Corresponding author
(Most downloaded paper of the journal may 2018 to till now)
- **B. Dash**, B.R. Das, B.C. Tripathy, I.N. Bhattacharya and S.C. Das; Acid dissolution of alumina from waste aluminium dross”, **Hydrometallurgy**, Volume 92, Issues 1-2, May 2008, Pages 48-53. **(Top 20th article of Hydrometallurgy 2008).**

Publications and Patents

Patents

1. A Process for Production of Crystalline Boehmite by Precipitating from Supersaturated Sodium aluminate Liquor under Atmospheric conditions at a Temperature as low as 50°C.

I.N. Bhattacharya, **B. Dash**, B.C. Tripathy, K. Sanjay, S.C. Das, V.N. Misra, C.R. Mishra and S.P. Mohapatra.

**Indian patent No. 0907DEL2006
Granted in India -267384 Date-16/07/2015**

2. A novel hydrometallurgical process for the production of tellurium from high lead bearing copper refinery anode slime

Tondepu Subbaiah, Barada Kanta Mishra, Malay Kumar Ghosh, Kali Sanjay, Indra Narayan Bhattacharya, Chinmaya Kumar Sarangi, Barsha Dash, Abdul Rauf Sheik

CSIR patent number- 2459DEL2013, Dt. 20.08.2013

3. Hydrometallurgical Process For The Recovery Of Tellurium From High Lead Bearing Copper Refinery Anode Slime.

Tondepu Subbaiah, Barada Kanta Mishra, Malay Kumar Ghosh, Kali Sanjay, Indra Narayan Bhattacharya, Chinmaya Kumar Sarangi, **Barsha Dash**, Abdul Rauf Sheik.

**Patent No.US 2015/0053572 A1, Dt.26.02.2015
Granted . No- US9630844B2, Dt. 25.04.2017**

4. A process for the preparation of thermally treated composite of Zn-Al layered double hydroxide having antibacterial activity

Barsha Dash, Sony pandey, Geetanjali Mishra

**CSIR patent number- 2893 DEL 2013, Dt.30.09.2013
Granted : 349714, 21 October 2020**

Book

1. Precipitation and Dehydration of Hydrated Alumina
Authors: **Barsha Dash**, Indra Narayan Bhattacharya, Bijay Kumar Mishra
LAP LAMBERT Academic Publishing
ISBN-10: 3659340987

ISBN-13: 978-3659340987

2. Layered Double Hydroxide Composites and their Antimicrobial activity.
Authors: Geetanjali Mishra, **Barsha Dash**, Sony Pandey
LAP LAMBERT Academic Publishing

Book Chapter

1. **Series:** *Environmental Science and Engineering*
Vol. 4: Water Pollution & Waste Water Treatment
Titles of Chapter: *Arsenic Removal from Industrial Effluents Through Ferric Arsenate Precipitation*
Author (s) **Barsha Dash**, Geetanjali Mishra, Kali Sanjay and Tondepu Subbaiah
ISBN Of Series 1-62699-088-3
ISBN OF Volume 1-62699-092-1
Pages 354-363
Editor of Volume Dr. J C Singhal
Chief Editor Dr. Bhola R Gurjar
Executive Editor Dr. J.N. Govil
Publisher Studium Press LLC, USA
2. **Series: Current status of nano materials for multi functional applications**
Volume-2: Nano Structures Toward Biomedical Application
Chapter-3: Metal Nanoparticles As Potential Antimicrobial Agents
Authors: Diptipriya Sethi, Geetanjali Mishra, **Barsha Dash** and Ramasamy Sakthivel
Page-99-143
3. **Book: Rare Metal Technology-2019**
Chapter: Nepheline Syenite—An Alternative Source for Potassium and Aluminium
Authors: J.Samantray, A. Anand, **B.Dash**, M.K. Ghosh, A.K.Behera
Publisher: Springer
Pages: 145-159

Publications: Total: 44 (SCI-39) **(Listed: Last 5 years)**

1. Bhagyalipi Tripathy, Sasmita Prusty, Manish Bhartia, A. Bandyopadhyay, **Barsha Dash**, Influence of mineral and organic acids on the structural, morphological and packing properties of silica sand, Journal of Engineering and Applied Science, (2026) 73:128 <https://doi.org/10.1186/s44147-026-00988-7>
**Corresponding Author*
2. Sonidarsani Routray, Binapani Behera, Barsha Marandi, K. Sanjay, M.K. Ghosh, And **Barsha Dash**, Insight into Cu Extraction Using Deep Eutectic Solvent: Reaction

Mechanism, METALLURGICAL AND MATERIALS TRANSACTIONS B, 56, 2025, 292-299.

<https://doi.org/10.1007/s11663-024-03320-x>

*Corresponding author

3. Jayashree Samantray, Amit Anand, **Barsha Dash** & Malay K. Ghosh, Low temperature hydrothermal processing to recover aluminum from nepheline syenite roast leach residue, Separation Science and Technology, 58:14, 2505-2518, DOI: 0.1080/01496395.2023.2260084 To link to this article:
<https://doi.org/10.1080/01496395.2023.2260084>
4. Rashmirekha Samal, Surjeet Mahalik, Sonidarshani Routroy, **Barsha Dash**, Kali Sanjay, High Pure Co (II) Precursor Liquor From Spent Catalyst Leach Liquor, *Journal of Sustainable Metallurgy*, <https://doi.org/10.1007/s40831-023-00693-2>
- *Corresponding author
5. Sonidarshani Routray, **Barsha Dash**, Abdul R. Sheik, C. K. Sarangi and Kali Sanjay, Kaolin: An Alternate Resource of Alumina , Sustainable Chemical, Mineral and Material Processing, Select Proceedings of 74th Annual Session of Indian Institute of Chemical Engineers (CHEMCON-2021), 2022, 135-144.
- *Corresponding author
6. Surjeet Mahalik, A. R. Sheik, **Barsha Dash**, C. K. Sarangi & K. Sanjay, Reclamation of tungsten from spent HDS catalyst: a detailed study, Indian Chemical Engineer 2022, 64, 4, 416–429
- *Corresponding author
7. Jayashree Samantray, Amit Anand, **Barsha Dash**, Malay Kumar Ghosh, Ajaya Kumar Behera, Silicate minerals - Potential source of potash - A review, Minerals Engineering, 179 (2022) 107463
8. Geetanjali Mishra, Sanjit Das, Priyalisa Jena, **B. Dash**, Synthesis and characterization of template mediated mesoporous alumina nanostructure with efficient and fast adsorption of Congo Red from aqueous solutions, Materials Advances, 3, 2022, 3490-3499.
9. G. Mishra, **B. Dash**, A. R. Sheik, C. K. Sarangi, P. Vijetha, K. Sanjay, M. K. Ghosh, T. Subbaiah, Recovery of Lead as Lead Sulphide from Anode Slime Using Hydrometallurgical Technique, J. Inst. Eng. India Ser. D, 2021,
10. RR Samal, Aneeya K Samantara, S Mahalik, JN Behera, **B Dash**, K Sanjay, [An anionic and cationic surfactant-assisted hydrothermal synthesis of cobalt oxide nanoparticles as the active electrode material for supercapacitors](#), New Journal of Chemistry, 45 (2021) 2795-2803.

*Corresponding author

11. Geetanjali Mishra, S.Mahalik, **Barsha Dash**, K.Sanjay, M.K.Ghosh, Iron control in wet chemical leaching of polymetallic nodule through combined reagent, *Analytical Chemistry Research*, *ACI*, 1(1)2021, 9-14.
12. Sibani Mahapatra, Jyotsna Rani Sahu, **Barsha Dash**, Synthesis and characterizations of different aluminosilicate nano matrices, *Materials Today: Proceedings*, 35 (2021)186-192

*Corresponding author

13. Jayashree Samantray, Amit Anand, **Barsha Dash**, Malay K. Ghosh, and Ajaya K. Behera
Sustainable Process for the Extraction of Potassium from Feldspar Using Eggshell Powder, *ACS Omega* **2020** 5 (25), 14990-14998 DOI: 10.1021/acsomega.0c00586
14. Bibek Dash, **Barsha Dash** Swagat S. Rath, A thorough understanding of the adsorption of Ni (II), Cd (II) and Zn (II) on goethite using experiments and molecular dynamics simulation, *Separation and Purification Technology*, 240, 2020, 116649
15. R&D Efforts of CSIR-IMMT Toward Solving Some Issues Related to Aluminum Production, Ranjan Kumar Dwari, Chinmaya Kumar Sarangi, Syed Md. Mustakim, **Barsha Dash**, Bankim Chandra Tripathy, Malay Kumar Ghosh, Suddhasatwa Basu, *Journal of Sustainable Metallurgy*, 6, 2020, 9-17
16. Jayashree Samantray, Amit Anand, **Barsha Dash**, Malay K. Ghosh, Ajay K. Behera, Nepheline syenite—an alternative source for potassium and aluminium, *Rare metal technology*, 2019, **TMS Book chapter**, Springer Publication, page 145-159.
17. Geetanjali Mishra, **Barsha Dash**, Sony Pandey, Effect of molecular dimension on gallery height, release kinetics and antibacterial activity of Zn-Al layered double hydroxide (LDH) encapsulated with benzoate and its derivatives. **Applied Clay Science**, 181, 2019, 105230.

*Corresponding author

18. J.Samantray, A. Anand, **B.Dash**, M.K. Ghosh, A.K.Behera, Production of potassium chloride from K-feldspar through Roast-leach-Solvent Extraction route, **Trans IIM**, <https://doi.org/10.1007/s12666-019-01730-z>
19. Geetanjali Mishra, **Barsha Dash**, Sony Pandey, Diptipriya Sethi, Ternary layered double hydroxides (LDH) based on Cu-substituted Zn-Al for the design of efficient antibacterial ceramics, **Applied Clay Science**, 165, 2018, 214-222.

*Corresponding author

20. A.K.Tripathy, B.Behera, V.Aishwarya, A.R.Sheikh, **B.Dash**, C.K.Sarangi, B.C.Tripathy, K.Sanjay, I.N.Bhattacharya, Sodium fluoride assisted acid leaching of coal fly ash for the extraction of alumina, **Minerals Engineering**, 131, 2018, 140-145.

21. Meenakshi Rath, Laxmi Priya Behera, Barsha Dash, Abdul Rauf Sheik, Kali Sanjay, Recovery of dimethylglyoxime (DMG) from Ni-DMG complexes, **Hydrometallurgy**, 176, 2018, 229-234

*Corresponding author

22. Geetanjali Mishra, **Barsha Dash**, Sony Pandey, Layered double hydroxides: A brief review from fundamentals to application as evolving biomaterials, **Applied Clay Science**, 153, 2018, 172-186.

*Corresponding author

(Most downloaded paper of the journal may 2018 to till now)

23. Geetanjali Mishra, **Barsha Dash**, Sony Pandey, Diptipriya Sethi, C. Ganesh Kumar, Comparative Evaluation of Synthetic Routes and Antibacterial/Antifungal Properties of Zn–Al Layered Double Hydroxides Containing Benzoate Anion, **Environmental Engineering Science**, 35, 2018, 247-260, DOI: 10.1089/ees.2017.0062

*Corresponding author

Projects (as PI)

Sl. No.	Title of Project	Duration	Total Cost	Funded by
1	Silver Recovery enhancement from mines to smelter	2024-2025	17	HZL, Rajasthan
2	Mapping and Tapping of Critical Mineral- Work package-04	2024-2027	80	CSIR
3	Extraction and isolation of Li, K, Rb and Cs from Mica	2020-2021	10	Ministry of Mines
4	Development and scale up studies for Cu incorporated Zn/Al layered double hydroxide antimicrobial material as protective cement additive	2020-2022	59.8	CSIR
5	Development of process for production of pure and white Alumina Tri Hydrate (ATH) for solid surface application	2019-2022	31	NALCO, BBSR
6	Solvatometallurgical extraction of Cu and Zn from low grade ores	2018-2020	41.20	CSIR

and secondaries through
Deep Eutectic Solvents(DES)

Silver Recovery enhancement from mines to smelter	Hindustan Zinc Limited	PI	2024-2025	Ongoing
Technology Development for extraction of potash from aluminosilicate minerals	CSIR	Activity Leader of WC-04 (PI)	2024-2027	Ongoing