

Deepa Dixit, PhD

Post-Doctoral Fellow (NPDF)

Department of Chemical Engineering

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ACADEMIC DETAILS

| Examination | University | Institute | Year | CPI/% |
|---|-----------------|-----------------|------|-------|
| <i>Post Graduate Specialization: Chemical Engineering</i> | | | | |
| PhD | IIT Gandhinagar | IIT Gandhinagar | 2020 | 8.47 |
| M-Tech | RGTU, Bhopal | IES IPS Academy | 2013 | 9.06 |
| <i>Undergraduate Specialization: Chemical Engineering</i> | | | | |
| B.E. | RGTU, Bhopal | IES IPS Academy | 2010 | 86.09 |
| Class-XII | MPBSE Bhopal | SCMKV Indore | 2006 | 73.1 |
| Class-X | MPBSE Bhopal | SCMKV Indore | 2004 | 75.4 |

TECHNICAL PUBLICATIONS

- **Deepa Dixit**, Shreya Bunk, Ramkrishna Rane, Chinmay Ghoroi “Influence of Ar plasma treatment on the wetting behavior of pharmaceutical powders” *Advanced Powder Technology* 28 (2017) 346–355.
- **Deepa Dixit**, Virupakshi Soppina, Chinmay Ghoroi “A Non-electric and Affordable Surface Engineered Particle (SEP) based Point-of-Use (POU) Water Disinfection System” *Scientific Reports* volume 9, Article number: 18245 (2019)
- **Deepa Dixit**, Chinmay Ghoroi “Role of Randomly distributed Nanoscale Roughness for Designing Highly Hydrophobic Particle Surface without Using Low Surface Energy Coating” *Journal of Colloid and Interface Science*, 564, (2020), 8-18.
- **Deepa Dixit**, Chinmay Ghoroi “Droplet Wetting Behavior and Bacterial Adhesion Mechanism on the Surfaces Designed in a Controlled Manner” (Ready to submit)
- Mike H. Bergin, Chinmay Ghoroi, **Deepa Dixit**, James J. Schaur, and Drew T. Shindell “Large Reductions in Solar Energy Production Due to Dust and Particulate Air Pollution” *Environment Science Technology Letter*, 4, 8, 339-344 (2017).
- Vikram Karde, **Deepa Dixit**, Chinmay Ghoroi “Adhesion Force Approximation at Varying Consolidation Stresses for Fine Powder under Humid Environmental Conditions” *Advanced Powder Technology*, Volume 28, Issue 2, Page 346-355, (2017)
- G. Jaya Rao, R. Mazumder, **D. Dixit**, C. Ghoroi, S. Bhattacharyya, P. Chaudhui “Fabrication and characterization of Li₄SiO₄ pebbles by extrusion spherodization technique: Effects of three different binders” *Ceramics International* 45 (2019) 4022–4034

PATENT PUBLICATIONS

- Chinmay Ghoroi, **Deepa Dixit** “A Filter for Water Purification and A Process for Its Manufacture” Status: Granted on 25/05/2022, Patent No. 397587 (Application No. 201921034896)

CONFERENCES

- **Deepa Dixit**, Seethalakshmi P., Chinmay Ghoroi "Improving Water Sorption Capacity of Gujarat Clay" International Seminar on Mineral Processing Technology [MPT-2016], 5-7 Jan. 2016, organised by TCS Pune India. (Oral Presentation)
- **Deepa Dixit**, Chinmay Ghoroi "Influence of Nanoscale Roughness on Surface Energy and Wettability of Glass Beads" 2nd International Conference on Powder, Granules and Bulk Solids: Innovations and Applications, December 1 to 3, (2016) (Oral Presentation)
- **Deepa Dixit**, Shreya Bunk, Ramkrishna Rane, Chinmay Ghoroi "Understanding the Surface Chemistry, Surface Roughness and Wettability of Argon Plasma Treated Cornstarch Powder", 2017 AIChE Annual Meeting, Minneapolis, MN, October 29-November 3, 2017 (oral presentation)
- **Deepa Dixit**, Chinmay Ghoroi "Influence of Surface Asperities and Surface Energetics on Wetting Characteristics of Spherical Glass Beads", 2017 AIChE Annual Meeting, Minneapolis, MN, October 29- 3 November 2017 (oral presentation)
- Deepa Dixit, **Chinmay Ghoroi** "Surface Engineering for Designing Superhydrophobic and Superhydrophilic Particulate solids" 8th World Congress on Particle Technology April, 2018, Orlando, USA (Oral Presentation)
- **Deepa Dixit**, Chinmay Ghoroi "Novel surface engineered particles for point-of-use Water disinfection" 3rd International Conference on Applied Surface Science (3rd ICASS), Pisa Italy, June 2019 (Oral Presentation)
- **Deepa Dixit**, Chinmay Ghoroi "Droplet Wetting Behaviour and Bacterial Adhesion Mechanism on the Surface Designed via Photolithography" 3rd International Conference on Applied Surface Science (3rd ICASS), Pisa Italy, June 2019 (Poster Presentation)

RESEARCH PROJECTS

- **Post-Doctoral Fellow** (October 2020- June 2021, Mentor- Dr. Shalini Gupta)
 - Title: Developing Micropatterned Surfaces for High-Throughput Capture of Bacterial and Mammalian Single-Cells
- **PhD Thesis** (July 2014 to August 2020, *Supervisor: Prof. Chinmay Ghoroi*)
 - Title: Role of engineered nanoscale surface roughness for tuning the wetting behavior of micron-size particles
- **Independent Project** (July 2014- April 2015, *Guide: Prof. Chinmay Ghoroi*)
 - Title: Improving Water Adsorption Capacity of Gujarat Clay up to the level commercially used desiccant silica gel.
- **M-Tech Thesis** (Jan 2013-Sep-2013, *Supervisor: Prof. Nitesh Parmar*)
 - Title: To optimize the organic matter reduction condition for the reclamation of pharmaceutical wastewater from an industry by the electro-coagulation using response surface methodology (RSM) which is followed by natural coagulation processes.
- **Innovations and Entrepreneurship Development Centre Project** (Funded: 2012-2013) (*Mentor: Prof. Rajesh Kumar kaushal, Team member: Mr. Manoj Udasi*)

- Title: An indigenous water treatment method uses *Moringa oleifera* seeds in the form of a water-soluble extract in suspension, resulting in an effective natural clarification agent for highly turbid and untreated pathogenic surface water

WORK EXPERIENCE

- **Post-Doctoral Fellow**
 - **National Post-Doctoral Fellow (NPDF, SERB)**
 - June 2021 to Present, Department of Chemical Engineering, IIT Delhi, Mentor: Dr. Shalini Gupta
 - Title: Developing Smart Surfaces for High-throughput Capture and Screening of Single Cells
 - **Department of Bio-Technology Research Associate (DBT-RA)**
 - October 2020- June 2021, Mentor- Dr. Shalini Gupta
 - Title: Developing Micropatterned Surfaces for High-Throughput Capture of Bacterial and Mammalian Single-Cells
- **Funded Project from PhD Thesis: Surface Engineered Particle (SEP) based Point-of-Use Water Disinfection**
 - Duration: August 2019- November 2019, Position: Senior Research Fellow,
 - Helped in developing the SEP based filter for its field testing and deployment in under-developed regions
- **Teaching assistantship (TA)** for various courses and summer projects in the Department of Chemical Engineering, IIT Gandhinagar from 2014 to 2019
- **Department of Chemical Engineering, IES IPS Academy Indore**
 - Lecturer (Aug 2010- July 2011), and Assistant Professor (July 2013-Feb 2014)
 - Subjects of interest: Mass Transfer, Heat Transfer, Transport Phenomenon

ACADEMIC ACHIEVEMENTS

Fellowships

- Received **National Post-Doctoral Fellow 2020 (NPDF, SERB)** by Department of Science and Technology (DST), Government of India, New Delhi
- Received **Department of Bio-Technology Research Associate 2020 (DBT-RA)** by Department of Bio-Technology (DBT), Government of India, New Delhi
- Received **DST travel grant** to attend the *3rd International Conference on Applied Surface Science (3rd ICASS)*, Pisa Italy, June 2019
- Received **CSIR Travel grant** to attend the *3rd International Conference on Applied Surface Science (3rd ICASS)*, Pisa Italy, June 2019

Awards

- Received Gandhian Young Technology Innovation Award 2020 (GYTIA 2020)
- Received **Chancellor scholarship, Chancellor gold medal, University gold medal and Two Endowment Medal** for securing **first position** in all branches in the 7th Convocation RGPV Bhopal (July 2012)
- Qualify the examination held by **IGCAR** for **JRF** at Chennai (2011)
- **Best Student Achievement** Award in IES IPS Academy Indore (2008)

Academics

- Received funding from the **WIN Foundation** for the thesis project on developing novel surface engineered particle based point-of-use water purifier in 2019
- Secured third position in the Higher Secondary Examination (2007)
- Stood first in the M-Tech Examination in 2014.

REFERENCES

Dr. Chinmay Ghoroi

Professor

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Dr. Shalini Gupta

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CORRESPONDENCE ADDRESS

Deepa Dixit

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DECLARATION

I do hereby declare that all the information given above is correct to the best of my knowledge.

Place: Delhi

Date: 11-02-2022

Deepa Dixit