ANINDYA NATH

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Summary

A highly motivated and enthusiastic mechanical engineering graduate with 2+ years of industrial experience. My research experience have been in the microfluidics domain wherein I have tried to enhance the mixing performance of electroosmotic micromixers using passive, active and compound techniques.

Work Experience

Larsen & Toubro Construction
(Sr. Engineer, Planning) July, 2018-December, 2020
Responsible for-

- Sub-contractor management, work order management and billing in a 412 Cr (in INR) water supply project (WSP) at Jharsuguda, Odisha, India.
- Procurement of project materials ensuring minimum lead time.

Education

- **M. Tech in Thermal Engineering**
  (National Institute of Technology Silchar) Year of Passing-2023
  CGPA**- 9.94** (out of 10)

- **B. Tech in Mechanical Engineering**
  (National Institute of Technology Silchar) Year of Passing-2018
  CGPA**- 8.63** (out of 10)

- **XII (HSSLC under AHSEC)**
  (Ramanuj Gupta Jr. College, Silchar) Year of Passing-2014
  Percentage**- 88.20 %**

- **X (HSLC under SEBA)**
  (Holy Cross School, Silchar) Year of Passing-2012
  Percentage**- 85.00%**

Publications

[1] A. Nath, S. Pati, L. Baranyi, Effect of Surface Charge Heterogeneities on the Electroosmotic Mixing Performance in a Raccoon Micromixer with Sinusoidal Zeta Potential. Accepted to 4th International Conference on Recent Developments in Mechanical Engineering| ICRAME 2023, 03-05 February 2023, NIT Silchar, India.

[2] S. K. Mehta, A. Nath, S. Pati, Vortex Assisted Ccontrolling of Chemical Reaction Inside an Electroosmotic Micro- Reactor. Accepted to 4th International Conference on Recent Developments in Mechanical Engineering| ICRAME 2023, 03-05 February 2023, NIT Silchar, India.

[3] L. Chetia, A. Nath, D. H. Das, S. Pati, P. R. Randive, Numerical Investigation on Heat Transfer Enhancement Using Dimples on the Inner Pipe of a Double Pipe Heat Exhanger, Accepted to 4th International Conference on Recent Developments in Mechanical Engineering| ICRAME 2023, 03-05 February 2023, NIT Silchar, India.

[4] A. Nath, S. K. Mehta, S. Pati, Effect of Patch Length on Electroosmotic Mixing Characteristics inside a Heterogeneously Charged Micromixer. Accepted to Techno-Societal 2022: Proceedings of the 4th International Conference on Advanced Technologies for Societal Application, at SVERIs College of Engineering, Pandharpur, Maharashtra, December 9-10, 2022, Paper No: 7734.

[5] S. K. Mehta, A. Nath, S. Pati, Influence of Uneven Patch Zeta Potential on Electroosmotic Mixing Characteristics in a Heterogeneously Charged Micromixer. Accepted to Techno-Societal 2022: Proceedings of the 4th International Conference on Advanced Technologies for Societal Application, at SVERIs College of Engineering, Pandharpur, Maharashtra, December 9-10, 2022, Paper No: 551.

[6] A. Nath, H. Dey, S. Pati, L. Baranyi, Numerical Investigation of Hydrothermal Performance of Viscoplastic Fluid Flow in Wavy Channels, submitted to journal.

Projects

- **Numerical investigation of hydrothermal performance of viscoplastic fluid flow in wavy channels** Sept, 2022-Nov, 2022
  - Numerically investigated the thermo-hydraulic characteristic for laminar flow of viscoplastic fluids through sinusoidal, triangular and trapezoidal channels.
  - Study shows that trapezoidal channels have the best thermal performance with highest average Nusselt number followed by sinusoidal and triangular.
- **Improvement of mixing performance in microchannels** June, 2022-May, 2023

  Objective-I
  - Explored the effect of positively charged patch length on electroosmotic mixing characteristics inside a heterogeneously charged micromixer.
  - Observed that the mixing efficiency improves and uniformity in species concentration increases with increase in the patch length.

  Objective-II
  - Studied the influence of uneven patch zeta potential on electroosmotic mixing characteristics in a heterogeneously charged micromixer.
  - Observed that increased unevenness between the patch zeta potential at the top wall and that at the bottom wall improves the mixing performance and species concentration uniformity.

  Objective-III
  - Studied the influence of channel amplitude and wavelength on the electroosmotic mixing performance inside a raccoon channel with sinusoidal zeta potential.
  - Observed that the mixing efficiency is directly proportional to the dimensionless amplitude whereas the mixing efficiency shows non-monotonous relation w.r.t. the wave number.

  Objective-IV
  - Investigated the electroosmotic mixing performance of corrugated channels of different geometries at different values of dimensionless wall zeta potential and Debye parameter.
  - Found that trapezoidal geometry performs the best overall as it gives us both quick and efficient mixing.

Achievements

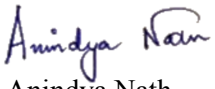
- **Institute Silver Medal Candidate**
  Selected for the award of institute silver medal for the best academic performance in the Thermal Engineering specialization of the Department of Mechanical Engineering, NIT Silchar.
- **Ministry of Education (MoE)-PG Scholarship**
  Received monthly stipend from MoE for post-graduate studies.
- **Top Performer Award-Jharsuguda WSP (L&T Construction)**
  Received the Top Performer Award for the year 2019-2020 at Jharsuguda WSP, L&T Construction.
- **Ananda Ram Borooah Award**
  Received the award from Govt. of Assam for good academic performance in HSLC exam.

Additional

- **Languages**
  English, Hindi, Bengali, Assamese
- **Softwares and Programing Languages**
  COMSOL Multiphysics®, Ansys FLUENT, CATIA, Creo® Parametric, MS Office, MATLAB
- **Academic interests**
  Fluid Mechanics, Heat and Mass Transfer, CFD, Microfluidics
- **Hobbies**
  Music, Travelling, Trekking, Photography

Declaration

I hereby declare that the above-mentioned information is true to the best of my knowledge and I bear the responsibility of the correctness of the above-mentioned particulars.



Anindya Nath 15-07-2023