Curriculum Vitae

Bikash Chandra Maharaj
Assistant Professor Grade II
Department of Biotechnology & Medical Engineering
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CURRENT

NIT Rourkela, Department of Biotechnology and Medical Engineering, Assistant Professor Grade II — 08/2024 - Present

- Co-developing and managing research projects on bioenergy with a computational approach
- ***Research Interest***: Computational Biology, Environmental Technology, Bioprocess Engineering, Biogeochemical Engineering

EXPERIENCE

cKinetics Consulting Private Ltd, Senior Associate (India) — 1/2023-08/2024

- Consulting and advisory for resource efficiency, circular economy, carbon footprint and water footprint
- Modelling Carbon credit demand and supply for North American clean fuel markets

BiofuelCircle Private Ltd, Product Specialist (India) — 09/2021- 12/2022

- Co-developing and managing platform functionalities for India's first digital trading marketplace for biomass/biofuel.
- Shared comments on BSI standard for solid biofuel
- Developed commodity standardization for biomass on trading platform

University of Naples Federico II, Post-Doctoral Researcher (Italy) — 12/2020-8/2021

- Conducted model calibration and validation for biogas production

EDUCATION

Doctor of Philosophy, Environmental Technology, Marie Curie Joint Doctoral, (EU) — 2019
Title: "ADM1 Based mathematical models to access trace element speciation in solid waste anaerobic digestion"

M.Tech in Biotechnology, IIT Guwahati (India) — 2013
Master Thesis: "Screening and optimization of hyaluronic acid production from new isolates"

B.Tech in Bioinformatics, D Y Patil Vidypeeth (India) — 2010
Bachelor Thesis: "Molecular Docking studies on PPAR-gamma for treatment of type II diabetes"

PEER-REVIEWED PUBLICATIONS

- Maharaj, B.C., Mattei, M.R., Frunzo, L., van Hullebusch, E.D., Esposito, G., (2019). ADM1 based mathematical model of trace element precipitation/dissolution in anaerobic digestion processes. Bioresour. Technol. 267, 253–259. https://doi.org/10.1016/j.biortech.2018.12.064
- Maharaj, B.C., Mattei, M.R., Frunzo, L., van Hullebusch, E.D., Esposito, G., (2018). ADM1 based mathematical model of trace element complexation in anaerobic digestion processes. Bioresour. Technol. 276, 666–676. https://doi.org/10.1016/j.biortech.2018.06.099
- Maharaj, B. C., & Mattei, M. R. (2019). Mathematical modelling of trace element dynamics in anaerobic digestion environments. *Trace Elements in Anaerobic Biotechnologies*, 101.IWA Publications, ISBN: 9781789060218
- Maharaj, B.C., Mattei, M.R., Frunzo, L., van Hullebusch, E.D., Esposito, G., (2021). A general framework to model the fate of trace elements in anaerobic digestion environments. *Scientific Reports 11*, 7476. https://www.nature.com/articles/s41598-021-85403-2

WORKING PAPERS

- Maharaj, B.C., Mattei, M.R., Frunzo, L., Esposito, G., (2024). Dynamics of trace elements in anaerobic digestion: Principles, Methods and Perspectives. *In Prep*
- Maharaj, B.C., Mattei, M.R., Frunzo, L., Esposito, G., (2024). ADM1 based mathematical model for Ni and Co deficiency on mesophilic anaerobic digestion. *In Prep*
- Maharaj, B.C., Prabhakar M.,, Balasubramanian P., (2024). Rough set machine learning approach to assess adsorption of recalcitrant species on biohar. *In Prep*

SCHORLARSHIPS AND AWARDS

- **Post Doctoral Fellowship** to carry out research in the topic "Mathematical Modelling of Fate of Trace Elements in Anaerobic Digestion Systems", Dec 2020 – Aug 2021, at The Department of Applied Mathematics, University of Naples Federico II, Naples (Italy)
- **Marie Curie Early Stage Researcher fellowship** Under Horizon 2020 Program of European Commission from Nov' 2015 – Dec 2019 for the project "Mathematical model based optimization of trace element dosing in anaerobic digestion" (EU)
- **Fellowship** from Ministry of Human Resources Development, Government of India from Jul' 2011 – Jul' 2013for the project "Process optimization for microbial synthesis of Hyaluronic acid from new isolates." (India)

PROFESSIONAL RECOGNITION

- Participation as contributing researcher in COST ACTION ES1302 "European Network on Ecological Functions of Metals in Anaerobic Biotechnologies" Athens (2016) & Ljubljana (2017).
- Travel assistance for presenting research work at Anaerobic Digestion Conference, Chaing Mai University, Thailand, 2018

CONTINUING EDUCATION

- Introductory Course on Anaerobic digestion, IHE Delft, The Netherlands, 2016
- Advanced Applied Engineering Mathematics, University of Naples Federico II, Italy, 2016
- Geochemical modelling, KTH, Stockholm, Sweden, 2017
- Advanced waste to energy biotechnologies – Circular economy approach, Tampere University, Finland, 2018

OTHER DETAILS

- Reviewer of research articles in journals: Water Research and Applied Environmental Biotechnology
- Participated as a runners up at state level mineral cum awareness program conducted by Society of geoscientist and allied technologists, Bhubaneswar, Odisha, 2003