

Curriculum Vitae

Santosh Kumar Mohanta, PhD

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Date of Birth: 22.04.1985 (Married: One Daughter)



EDUCATIONAL QUALIFICATION

Academy of Scientific and Innovative Research (AcSIR), New Delhi, India

(CSIR - Institute of Minerals and Materials Technology, Bhubaneswar, Odisha, India)

Ph. D. in Chemical Sciences **2020**

Research Topic: “*Surface pre-treatment for efficient tribo-electrostatic separation of coal and minerals*”

Maharaja Sriram Chandra Bhanja Deo University (Formerly North Orissa University), Odisha

M.Sc. in Analytical Chemistry **2009**

PROFESSIONAL TRAINING

- Certificate course on BRNS-AEACI Thirteen **School on Analytical Chemistry (SAC-13)**, Department of Atomic Energy, Govt. of India, 23rd -30th April 2018.
- Certificate course on **Spectrophotometric Methods of Analysis**, Advance Training Institute, Mumbai, Govt. of India, 21st July to 8th August 2008.

AWARD

- CSIR - Senior Research Fellowship (**CSIR-SRF**), Council of Scientific & Industrial Research, New Delhi, India **April, 2017 to March, 2020**

PROFESSIONAL EXPERIENCE

BPCL-OUAT Biofuel Chair,

Odisha University of Agriculture and Technology, Bhubaneswar, Odisha, India

Post-Doctoral Research Associate **April 2021 - till date**

CSIR-Institute of Minerals and Materials Technology, Bhubaneswar, India

Project Fellow/CSIR-SRF **Feb., 2012 - March, 2020**

Bureau Veritas, Kolkata, India (Formerly, Inspectorate Griffith India Pvt. Limited, Kolkata, India), Posted at different places of India

Chemist/Senior Chemist **July 2008 - Feb. 2012**

TECHNICAL SKILLS

- Execution of assigned assignment such as characterisation of different biomass (Cellulose, Hemicellulose, lignin and Extractives) by chromatographic technique such as **HPLC, GC** followed by different methods (Soxhlet apparatus, Autoclave, rotary evaporator), **Bomb calorimeter (IKA C-3000), UV-Vis spectrophotometer** and Gravimetric method.
- Thermogravimetric analysis of different biomass by **TG-DTA**.
- Design and operating aspects of free fall **tribo-electrostatic separator (in house designed and fabricated)** to separate ash from high ash Indian coal and different mineral system such as calcite, quartz, Na/K feldspar
- Experience on different unit operation in mineral processing for different ores and minerals such as **Communication, Size reduction, Classification, Froth flotation, Gravity concentration, Magnetic separation** etc.
- A **new methodology developed** to understand the surface functionalisation of coal and quartz with different chemical (aniline) in terms of frictional charge and work function with surface model formulated based on Density Functional Theory (DFT).
- Analysis of metals, minerals and water sample by **ICP-OES(DV-7300),UV-visible spectrophotometer, Particle size analyser, LECO-AC 350/500 for GCV, CHNS analyser, TGA, BET- Surface area analyser, Flame photometer**.
- Chemical analysis of different types of coal, coke, minerals, and ores samples by IS/ISO/ASTM methods as per **NABL** guidelines.

KNOWLEDGE AND SKILLS

- Analytical knowledge and Characterization techniques
- Project proposal with defining and designing the task with benchmarking and identification of need at each stage of task such as bench scale development, Pilot scale and Scale up
- Preparation of experiment / instruments SOP / reports / methods / documentation
- Managing of all procurement of chemical for research
- Data analysis / Presentation
- Drafting, reviewing and releasing of Technical Reports/communications/Scale up reports/Technology reports
- Publishing of research papers in national/International journals
- Comparative technical judgments and decision on required equipment/process/models

PUBLICATIONS

1. **S. K. Mohanta**, R. K. Dwari, Separation of coal-quartz mixture using tribo-electrostatic separator: Effect of surface pre-treatment. *Advanced Powder Technology*, (31) 2020, 3361-3371 (I.F.: 4.969, Citations : 2)
2. R. K. Dwari, **S. K. Mohanta**, Optimization of process parameter of tribo-electrostatic separator for high ash non-coking coal preparation using response surface methodology, *Separation Science and Technology*, 1-15, 2020. (I.F. : 2.799, Citations : 1)
3. **S. K. Mohanta**, S. S. Rath, R. K. Dwari, Surface functionalization of coal and quartz with aniline: A study on work function and frictional charge, *Powder Technology*, 338 (2018) 233-242. (I.F.: 5.64, Citations : 6)
4. **S. K. Mohanta**, B. Rout, R. K. Dwari, P. S. R. Reddy, B. K. Mishra, Tribo-electrostatic separation of high ash coking coal washery rejects: Effect of moisture on separation efficiency, *Powder Technology*, 294 (2016) 292-300. (I.F. : 5.64, Citations : 27)
5. R. K. Dwari, **S. K. Mohanta**, B. Rout, R. K. Soni, P. S. R. Reddy, B. K. Mishra, Studies on the effect of electrode plate position and feed temperature on the tribo-electrostatic separation of high ash Indian coking coal, *Advanced Powder Technology*, 26 (2015) 31–41. (I.F.: 4.969, Citations: 35).

CONFERENCE / ORAL PRESENTATION/ WORKSHOP

1. Participated in the five days **High-End Workshop** on “**Technical Insights of Ethanol Fermentation: 1G & 2G**” organized by Department of Food Process Engineering, at NIT Rourkela, Odisha from January 27st to 31st 2023.
2. R. K. Dwari, **S. K. Mohanta**, Effect of process parameter on the Tribo-electrostatic separation of Indian coal fines, IMPC – EURASIA 2019, 1st Regional Mineral Processing Conference, 31st Oct- 2nd November, 2019, ANTALYA/TURKEY.
3. **S. K. Mohanta**, S. S. Rath, R. K. Dwari, Studies on the effect of chemical conditioning on the tribo-electrostatic separation of coal-quartz powder, *XVII International Seminar on Mineral Processing Technology (MPT-2018)*, 10-12 October, 2018, Dhanbad, India, 260.
4. **S. K. Mohanta**, R. K. Dwari, Chemical pre-treatment for efficient tribo-electrostatic separation of coal-quartz powders, Poster competition on 55th CSIR-IMMT Foundation day, 13th April 2018, Bhubaneswar, India.

5. **S. K. Mohanta**, R. K. Dwari, Dry Tribo-electrostatic separation of coal: Effect of Chemical Conditioning, *National conference on Waste to Wealth in Mineral and Metallurgical Industries (WMMI-2018)*, 9-10th March 2018, Bhubaneswar, India.
6. **S. K. Mohanta**, B. Rout, R. K. Dwari, P.S.R. Reddy, B. K. Mishra, Tribo-Electrostatic Beneficiation of Indian Coal. *Proceeding of theXIII International seminar on Mineral Processing Technology (MPT-2013)*, 10-12th December 2013, Bhubaneswar, 619-623.
7. Participated in the one day **workshop** on “**Thin Film Characterization – basic principles and practices**” organized by Department of Physics IIT Madras and M/s THIN FILM SOLUTIONS at Indian Institute of Technology Madras, Chennai on February 21st, 2016.

MEMBERSHIP OF PROFESSIONAL BODIES

- Life member of Indian Institute of Mineral Engineers (IIME), Bhubaneswar

DECLARATION

I hereby declare that all the information furnished in this curriculum vitae are true and correct to the best of my knowledge and belief.

Bhubaneswar

Santosh K. Mohanta