

CURRICULUM VITAE

1.	Name	:	Dr. Debashish Mishra	
2.	Date of Birth	:	July 27, 1991	
3.	Current Position and Address	:	Senior Scientist and Hos Numerical Simulation MFVMH Research. Group CSIR-Central Institute of Mining & Fuel Research Barwa Road, Dhanbad-826 015 Jharkhand, INDIA	
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	Email	:	, dmishra@csir.res.in , dmishra200rout@gmail.com	
	Orcid id	:	0000-0001-7993-2895	
	AcSIR	:	Assistant Professor Faculty of Engineering Sciences	

4. Academic Qualification (Undergraduate Onwards)

Sl. No.	Degree	Year	Subject	University/Institution	% of marks/CGPA
1.	PhD	2025	Mining Engineering	IIT(ISM), Dhanbad	NA
2.	M. Tech	2014	Mine Safety Engineering	AcSIR, CSIR-Central Institute of Mining & Fuel Research, Dhanbad, Jharkhand	9.25
3.	B. Tech	2012	Mining Engineering	BPUT, Orissa School of Mining Engineering, Keonjhar, Odisha	7.9

5. Work experience (in chronological order).

S. No.	Positions held	Name of the Institute	From	To	Pay Scale
1.	Senior Scientist	CSIR-CIMFR	10/04/2021	Continuing	Level 12
2.	Scientist	CSIR-CIMFR	11/04/2016	10/04/2021	Level 11
3.	JRF	IIT, Kharagpur	05/01/2015	10/04/2016	NA

4.	Trainee Scientist	CSIR-CIMFR	05/09/2012	31/12/2014	Level 10
5.	GET Mining	HZL, Vedanta	27/03/2012	31/08/2012	NA

6. Area of specialization

- Development of dust suppression chemicals for control of dust related problems in mines, roadways, beneficiation plants and railway sidings.
- Design of ventilation systems for existing underground coal and metal mines
- Design of ventilation systems for virgin underground coal and metal mines
- Design of auxiliary ventilation systems for ventilation of blind headings and tunnels
- Ventilation and fire safety design for confined space ventilation i.e. underground storage, caverns, temples, caves etc.
- Heat load assessment in underground spaces to improve workplace environment
- Control of concealed and open fire in underground coal mines
- Monitoring and assessment of the status of fire
- Monitoring and assessment of Diesel particulate matter, dust and mine gases
- Determination of fan capacity for ventilation of existing as well as virgin mines

7. No. of

Research

Publications:

Papers in

journals: 11

In conference

proceedings: 15

List of SCI

publications:

a. Journals

- i. Mishra, Debashish., Mishra, D. P., Mohalik, N. K., Ray, S. K., and Pandey, J. K. (2025) "Effect of depth and particle size on spontaneous combustion of coal in deep underground mines of Jharia coalfield," Journal of Sustainable Mining, Vol.24: Iss. 1, Article 7. <https://doi.org/10.46873/2300-3960.1443>, IF: 0.77, (Q4).
- ii. D. Mishra, N.K. Mohalik, D.P. Mishra, Ray, S.K., and J. K. Pandey, "Improving workplace environment of a deep underground coal mine with multiseam workings: An alternative approach", Mining, Metallurgy and Exploration, <https://doi.org/10.1007/s42461-022-00639-4>.
- iii. Santosh Kumar Ray, Asfar Mobin Khan, Niroj Kumar Mohalik, Debashish Mishra, Somu Mandal, Jai Krishna Pandey, "Review of preventive and constructive measures for coal mine explosions: An Indian perspective", International Journal of Mining Science and Technology, Published online on

19.02.2022 <https://doi.org/10.1016/j.ijmst.2022.02.001>, Impact factor 4.084.

- iv. Niroj Kumar Mohalik, Santosh Kumar Ray, Debashish Mishra, Jai Krishna Pandey, Somu Mondal, Asfar Mobin Khan, Ranvijay Kumar Singh, “Prevention and control of spontaneous combustion/fire in coal stockpiles of power plants using firefighting chemicals, International Journal of Coal Preparation and Utilization, Published online on 19th August 2021, DOI:10.1080/19392699.2021.1964489, Impact factor 1.34
- v. Niroj Kumar Mohalik, Somu Mandal, Santosh Kumar Ray, Asfar Mobin Khan, Debashish Mishra, Jai Krishna Pandey, “TGA/DSC study to characterise and classify coal seams conforming to susceptibility towards spontaneous combustion”, International Journal of Mining Science and Technology 32 (2022) 75-88, <https://doi.org/10.1016/j.ijmst.2021.12.002>, Impact factor 4.084.
- vi. Somu Mandal, Niroj Kumar Mohalik, Santosh Kumar Ray, Asfar Mobin Khan, Debashish Mishra, Jai Krishna Pandey, “A comparative kinetic study between TGA & DSC techniques using model-free and model-based analyses to assess spontaneous combustion propensity of Indian coals”, Process Safety and Environmental Protection, Volume 159, March 2022, Pages 1113-1126, <https://doi.org/10.1016/j.psep.2022.01.045>, Impact factor 6.158.
- vii. Ray, S. K., Mohalik, N. K. Khan, A. M., Mishra, D, Varma, N K, Pandey, J K, and P K Singh CFD modeling to study the effect of particle size on dispersion in 20l explosion chamber: An overview 2020 International Journal of Mining Science and Technology, China Published on 24.04.2020. <https://doi.org/10.1016/j.ijmst.2020.04.005>
- viii. N. K. Mohalik, A. M. Khan, S. K. Ray, D. Mishra, N.K. Varma, R. V. K. Singh, P.K. Singh, Application of CFD Techniques to Assess Spontaneous Heating/Fire during Extraction of Thick Coal Seam Using Blasting Gallery (BG) Method 2019, Combustion Science and Technology USA Published on 2nd June 2019-13, 2019.
- ix. Mohalik, N. K., Mishra, D., S. K, N. K Varma, A. M Khan, N. Sahay, Laboratory Investigation to Assess Ray Spontaneous Combustion/Fire During Extraction of Thick Coal Seam 2019 Journal of The Institution of Engineers (India): Series D, India 1-14,

b. Seminar/symposia

- i. Mishra, D., Mohalik, N. K., Mishra, D. P., Ray, S. K., and Pandey, J. K. (2019). “Application of booster fan to improve Workplace environment of deep underground Coal mines: A case study” in the Proceedings of 8th Asian Mining

Congress, 6-9 November, Kolkata, India, organized by The Mining, Geological and Metallurgical Institute of India (MGMI) pp. 495-500.

- ii. Mishra, D., Mohalik, N. K., Mishra, D. P., Ray, S. K., Khan, A. M., and Pandey, J. K. (2023). Design of an Effective Ventilation System for Deep Underground Coal Mines Affected by Spontaneous Heating and Fire Using Double Booster Fans-A Practical Approach. In Springer Proceedings in Earth and Environmental Sciences (Vol. Part F1608, pp. 389–400). Springer Nature. https://doi.org/10.1007/978-3-031-46966-4_32.
- iii. S. K. Ray, D. Mishra, N. K. Mohalik, R. K. Singh, R. K. Mahato, A. K. Manjhi and J. K. Pandey, Statistical analysis of mine accident with special reference to firedamp and coal dust explosion, 2020, In: P K Mandal et al. (eds) Proceeding of National Conference on “Advances in Mining (AIM-2020)”, February 14-15, 2020, CIMFR, Dhanbad, pp 362-372.
- iv. D Mishra, N K Mohalik, S K Ray, N K Varma, D P Mishra and J K Pandey, “Application of booster fan to improve Workplace environment of deep underground Coal mines: A case study” 2019 in the Proceedings of 8th Asian Mining Congress, 6-9 November, Kolkata, India, organized by The Mining, Geological and Metallurgical Institute of India (MGMI), pp 495-500.
- v. Bhagwat, V.P., **Mishra, Debashish.**, Khanindra, Pathak, Dey, Kaushik, (2016): “Vibration predictor equation - Some issues”, Journal of mines, metals and fuel, Volume-55, pp-16-25.
- vi. **Mishra, Debashish.**, Sahay, Nageswar, (2014): “Effect of auto compression on ventilation system of deep shaft coal mines in Jharia coal field – A case study”, Journal of mines, metals and fuel, Volume-44, pp-20-28.
- vii. **Mishra, Debashish.**, Chakraborty, Sayantan.,& Dey, Kaushik (2017): “Identification of extent of blast-induced crack development using ground penetrating radar (GPR)”, International Conference on NexGen Technologies for Mining and Fuel Industries (NxGnMiFu-2017) February 15th to 17th, 2017, New Delhi, Allied publishers Pvt.Ltd, Pp- 349-358
- viii. **Mishra, Debashish.**, Sahay, Nageswar, and Ray, S.K. (2017): “Control of Concealed Fire by Inertisation in Underground Coalmines”, International Conference on NexGen Technologies for Mining and Fuel Industries (NxGnMiFu-2017) February 15th to 17th, 2017, New Delhi, Allied publishers Pvt.Ltd, Pp- 441-458.
- ix. Sahay, Nageswar., **Mishra, Debashish.**, Mohalik, N.K., (2017): “Mitigation of problem of spontaneous heating during liquidation of thick coal seam, 7th Asian Mining Congress, 2017.

- x. Ray, S.K., N.K. Mohalik, Asfar.M. Khan, D. Mishra, N. Sahay, “CFD Application for study of spontaneous combustion behaviour of coal in stockpile of power plant Sep, 2018, IMVC-2018, china.
- xi. Ray, S.K., N.K. Mohalik, D. Mishra, N. Sahay, and N. K. Varma, “Recent Development on methods to determine spontaneous heating susceptibility of Indian coals” July, 2017 National Seminar on Recent Mining and Environmental Issues in India 7th – 9th July 2017, Udaipur, PP-237-245, MEAI.
- xii. Sahay N. and Mishra, Debashish, “Methodology for Assessment of status of fire for safe reopening of sealed-off area-A new development”, Apr, 2018 Workshop and national conference on corrosion control in mining industry 16-17 April, 2018 NCCI (National corrosion council of India)

8. Books/Reports/Chapters/General articles etc.

Sl.No	Title	Author's Name	Publisher	Year of Publication
1.	Ventilation Planning and Design for deep Underground Coal Mines	Debashish Mishra, Nageshwar Sahay	ISBN-13: 978-3-659-92569-6	2017

9.

a. No. of Patents granted/applied for: National: 02

b. Technologies developed, Licensed and/or commercialized: Nil

10. Foreign visits: One (01)

11. Details of Professional memberships:

Sl -No	Name of the body/institution	
1.	Institution of engineers' (IEI)	(Associate member)
2.	Mining engineers' association of India (MEAI)	Life Member
3.	Indian mining engineering journal (IMEJ)	Life Member
4.	Indian Thermal Analysis Society, BARC, Mumbai	Life Member
5.	Mining Geological and Metallurgical Institute (MGMI), India	Life Member

12. Major contributions: (Max. 150 words)

- Design of ventilation system of deep underground coal mines with multiseam workings using booster fans

13. Technologies and Products/Services: **Completed more than 50 Number of industries sponsored and consultancy projects successfully in Mining and Allied industries.**

14. Designs and Prototype Developed: 02

a. List of National Patent Filed

- I. “Low temperature air purifier that kills Covid-19 virus for indoor use” 0166NF2021, Application No: 202211012041, Santosh Kumar Ray, Bimal Chandra Bhowmick, Debashish Mishra, Jai Krishna Pandey, Niroj Kumar Mohalik, Pradeep Kumar Singh

- II. “An adiabatic double cylinder air purifier and use thereof” 0012NF2022, Application No. 202211006593, Santosh Kumar Ray, Bimal Chandra Bhowmick, Debashish Mishra, Niroj Kumar Mohalik, Kumari Anjali, Jai Krishna Pandey.

b. List of Copy-right Granted in India

1.	CIMFR-PSYCHRO: Climatic prediction software and android application	INDIA	IPR/CIMFR/CRA/10/01(04)2021	December, 2021	D. Mishra, J.K. Pandey, S.K. Ray, N.K. Mohalik, P.K. Singh and R. Priyadarshi
2.	FIRE-INDICATOR: Mine fire prediction software and android application	INDIA	IPR/CIMFR/CRA/10/01(04)2021	December, 2021	D. Mishra, S.K. Ray, J.K. Pandey, N.K. Mohalik, P.K. Singh and R. Priyadarshi
3.	MINE-EXPLO: Mine explosion prediction software and android application	INDIA	IPR/CIMFR/CRA/10/01(04)2021	December, 2021	S.K. Ray, D. Mishra, J.K. Pandey, N.K. Mohalik, P.K. Singh and R. Priyadarshi

15. Any other Information (maximum 500 words).

Dr Debashish Mishra is involved in many R&D and industry sponsored Projects. He is extensively engaged in mine ventilation and fire, coal dust explosion study and estimation, CFD simulation of airflow in the mine, application of CFD modelling to determine the spontaneous heating of coal. Beside this, he is actively involved in testing and calibration of anemometers, ducts and brattice cloth.