BIOGRAPHY

Dr. Patitapaban Sahu is presently working as an **Associate Professor in the Department of Mining Engineering, Indian Institute of Technology (Indian School of Mines), Dhanbad**. He did his B.Tech in Mining Engineering in 2010 from the National Institute of Technology (NIT), Rourkela, Odisha, India. He obtained his Ph.D. in Mining Engineering in 2015 from the Indian Institute of Technology (Indian School of Mines), Dhanbad (IIT-ISM Dhanbad). After graduating from NIT, Rourkela; he served as Graduate Engineer Trainee in UltraTech Cement, Aditya Birla, for one year. His research areas are mainly focused on mine ventilation, mine fire, coalbed methane (CBM), monitoring of radiation level in mines, and other areas related to mine environmental engineering. He has published one book and 31 research papers, out of which 21 are in reputed international/national journals indexed in SCI and Scopus, and 11 in conference proceedings. He has successfully executed three (03) R& D projects received from Science and Engineering Research Board (SERB) of Government of India, Technical Education Quality Improvement Programme (TEQIP) of Government of India, Faculty Research Scheme of IIT-ISM Dhanbad as a Principal Investigator (PI). He has also executed 17 Industry sponsored projects as Co-CI and member for solving the real-life problems of different coal and metal mines. He guided 1 PhD student, 8 postgraduate students and many undergraduate students in the area of mine safety. He is presently guiding three Ph.D. students on the mine ventilation and mine fire topics. He reviewed one R&D project received from the Department of Science & Technology (DST-SERB), Govt. of India, and various research papers received from 10 different reputed journals.

He has been conferred the following awards:

- Canara Bank Research Publication Award-2015 for the Department of Mining Engineering on the occasion of 90th Foundation Day of erstwhile Indian School of Mines, Dhanbad in 2015
- International travel support scheme (ITS) from DST, Government of India in 2014
- Students' International Travel (SIT) Grant Scheme from ISMAA, erstwhile Indian School of Mines, Dhanbad, in 2014.

Area of Interests

Mine ventilation, Mine environment engineering, Radiation monitoring, Coalbed Methane

Curriculum Vitae of Dr Patitapaban Sahu

I. NAME: Dr. Patitapaban Sahu

II. FATHER'S NAME: Shri Hadu Sahu

III. MOTHER'S NAME: Mrs. Mamata Sahu

IV. EMPLOYEE ID: 1091

V. CONTACT ADDRESS: Department of Mining Engineering
Indian Institute of Technology (ISM), Dhanbad
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+91-326-2235149 (R)
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Email: patitapaban@iitism.ac.in, patitapaban99@gmail.com

VI. DATE OF BIRTH: 05/05/1986

VII. WHETHER BELONGS TO 'SC/ST/OBC/PH': None

VIII. ACADEMIC QUALIFICATION

Examination	Board	Year of passing	Institution	Remarks
PhD (Mining)	Autonomous	2015 (Awarded)	Indian Institute of Technology (ISM), Dhanbad, Jharkhand	-
B.Tech (Mining)	Deemed University	2010	National Institute of Technology, Rourkela, Odisha	1st division

IX. RESEARCH INTEREST

- Mine ventilation and environment engineering
- Mine dust and its control
- Modelling of heat flow in underground mines
- Radiation monitoring in mines
- Coalbed Methane and ventilation air methane
- Data analytics in mining.

X. COURSES TAUGHT/TEACHING

Undergraduate

1. Coalbed methane
2. Underground mine
3. Mine ventilation
4. Mine environmental engineering
5. Mine ventilation practical
6. Mine environmental engineering practical
7. Mine Surveying-I
8. Surveying
9. Surveying practical
10. Coal Mine Methane Recovery and Utilization
11. Mine Automation and Data Analytics

Postgraduate

1. Ventilation and Environmental Engg. for Tunnels and Underground Space
2. Advanced Underground Mine Ventilation and Environmental Engineering
3. Elements of Mining Technology
4. Advanced Underground Mine Ventilation and Environmental Engineering Practical
5. Ventilation and Illumination Practical
6. Computational Subsurface Ventilation And Environment
7. Mine Simulation and Data Analytics
8. Computational Subsurface Ventilation And Environment Practical

XI. EXTRA RESPONSIBILITIES

- Treasurer, PARAKRAM'-2025, IIT (ISM), Dhanbad
- Faculty Advisor, Kartavya, an NGO under the aegis of CSM, IIT(ISM) Dhanbad
- Secretary, DAC – August, 2023 to till date
- Warden, Aquamarine Hostel – 29.06.2022 to 30.06.2024
- Faculty-in-charge – Vacational Training
- Faculty-in-charge – Radiation and Gas Testing Laboratory
- Faculty Advisor – III/IV Semester (B.Tech & Dual Degree) during 2018-2019
- Tabulator of Deptt. of Mining Engg. during 2015-2018
- Member in 38th, 39th and 40th Convocations of IIT(ISM) held on 18th & 19th June, 2018, 11th December, 2018 and 21 December, 2019.
- Joint treasurer in Srijan, III and Basanta-2020 at IIT(ISM).
- Nominated as the Reporting Centre (RC) officers for online verification of the documents of the candidates, who have been allocated seats at IIT(ISM) Dhanbad, via JoSAA-2020 during the period 17-20 October, 2020.
- Nominated as the member of Departmental Faculty Screening Committee (DFSC) of the Department of Mining Engineering for Assistant Professor Positions

XII. WORK EXPERIENCE

Position	Organization	Period
Associate professor Basic Pay: Rs. 148100/- (Level 13A2: Rs. 139600/- – Rs. 211300/-)	Indian Institute of Technology (ISM), Dhanbad	From 09/08/2023 to till now
Assistant professor (Grade I) (Level 13A1: Rs. 131400/- – Rs. 204700/-)	Indian Institute of Technology (ISM), Dhanbad	From 23/07/2021 to 08/08/2023

Assistant professor (Grade I) (Level 12: Rs. 101500/- – Rs. 167400/-)	Indian Institute of Technology (ISM), Dhanbad	From 23/07/2018 to 22.07.2021
Assistant professor (Grade II)	Indian Institute of Technology (ISM), Dhanbad	From 23/07/2015 to 22/07/2018
Post-Doctoral Fellow	Indian Institute of Technology (ISM), Dhanbad	From 20/04/2015 to 22/07/2015
GET (Mining Engg.)	UltraTech Cement, Aditya Birla, Chhatisgarh	From 01/07/2010 to 28/06/2011
Industrial training	Mahanadi Coal Field Limited, Basundhara, Odisha	From 16/05/2009 to 10/07/2009

XIII. SOFTWARE SKILLS

- MS office, R software, SPSS, Statistica, Origin, Ventsim.

XIV. AWARD/HONOUR/PRIZE/CERTIFICATE

- Invited as an external expert for recruitment of Mine Officers for Indian Bureau of Mines in the month of August, 2024.
- Nominated as Executive Committee Member of Mining Engineers Association of India, Dhanbad Chapter w.e.f. 22.07.2024 for two years.
- Nominated as one of the members for Board of Studies (BoS), Biju Patnaik University of Technology (BPUT), Odisha, w.e.f. 24.06.2024 for two years.
- Received the certificate as Resource Person in the Skill Development Training Program on Assistant Mine Surveyor Course for "Enhancing the Employability of Youths" Under the Scheme of PMKVY 4.0 & NSDC (April, 2023 to July, 2023 and Nov, 2023 to May, 2024).
- Invited as an External Examiner for evaluation of the Ph.D. thesis in May, 2024.
- Invited as an external examiner for conducting evaluation of major project of Final year B.Tech (Mining Engg.) Students at Government College of Engineering, Keonjhar, Odisha on 03.05.2024.
- Invited as an external examiner for conducting viva-voce examination of B.Tech (Mining Engg.) Students at BIT Sindri on 15.03.2024.
- Invited as an external expert for recruitment of mine officers for the UP Public Service Commission on 24.01.2024.
- Invited for delivering a lecture on airborne respirable dust, its impact and control for mining engineers of Guali Iron Ore Mines, Odisha Mining Corporation Ltd., via video conferencing on 23.04.2023.
- Nominated as a member of selection committee for the recruitment of project assistant in CIMFR, Dhanbad on 30.06.2021.
- Nominated as a member of selection committee for the recruitment of project assistant in CIMFR, Dhanbad on 08.01.2020.
- Received Canara Bank Research Award – 2015 during celebration of 90th Foundation Day on 09.12.2015 in Indian School of Mines, Dhanbad.
- Invited as Guest Lecture in MINARE 2k15 organised during 13-15 March, 2015 in National Institute of Technology, Rourkela, Odisha.
- Received International Travel Support Scheme (ITS) from Science and Engineering Research Board (SERB), a statutory body under Department of Science &

Technology, Government of India in July, 2014.

- Received Students' International Travel (SIT) Grant Scheme from ISMAA, Indian School of Mines, Dhanbad in June, 2014.
- Received course certificate for attending the 'Anglo Coal Explosion and Fire Awareness Seminar' at the Kloppersbos Test Facility, CSIR, South Africa, in August, 2014.
- Received course certificate for attending the Computational Fluid Dynamics (CFD) at INNOVENT Engineering Solutions Pvt. Ltd., Bangalore from May, 2013.
- Secured 66th rank in GATE-2011 in Mining Engineering.
- Secured 446th rank (state level) in AIEEE-2006
- Qualified in CBSE-PMT-2006
- Secured 250th rank in Orissa JEE – 2006.
- Secured 2nd position in essay competition during my plus two.
- Secured 3rd position in English Grammar competition during my schooling period.

XV. SEMINAR AND WORKSHOP ATTENDED

- International workshops on "Safety, health and ventilation cost benefit optimization with simulation and control" and "Mine refrigeration and cooling distribution", August 2014, Sun City, South Africa.
- International workshop on "Challenges and Opportunities of Underground Coal Gasification in India (UCG-2017)", February 12-13, 2017, Vigyan Bhawan, New Delhi, India.
- International conference on "NexGen Technologies for Mining & Fuel Industries (NxGnMiFu-2017)", February 14-17, 2017 (6 days), Vigyan Bhawan, New Delhi, India.
- International Workshop on "Best Practices in Methane Drainage and Use in Coal Mines", March 09-10, 2017, Radisson Blu, Ranchi-834001 (JH) India.
- International Workshop on "Indian Mining Legislation", 3rd November, 2017, Australian High Commission, New Delhi.
- National Seminar on "Safety, Security, Fire & Loss Prevention in a Digitised Business Environment", November 22-24, 2017, Maneskhaw Centre, New Delhi.

XVI. FOREIGN VISIT

- Visited **South Africa** to attend the '10th International Mine Ventilation Congress (IMVC)' during 2 – 8 August, 2014. I also visited Impala Platinum mine during this congress.
- Visited **China** to attend the '11th International Mine Ventilation Congress (IMVC)' during 14 – 20 September, 2018.

XVII. SPONSORED RESEARCH PROJECTS

Sl. No.	Title of project	Amount (Rs in lakhs)	Funding Agency	Role	Status
1	Evaluation of effect of ventilation on radon dose received by the	2.00	TEQIP (IIT-ISM)	PI	Completed

	miners in underground uranium mines (Patitapaban Sahu/MRP-DDF/ME/TEQIP).				
2	Prediction of ventilation requirement for optimization of radon concentration in low-grade underground uranium mines [Project No: FRS (93)/2015-2016/ME].	13.50	FRS (IIT-ISM)	PI	Completed
3	Radon exhalation and its control in Indian underground uranium mines [Project No: DST(SERB)/(153)/2016-2017/489/ME]	46.21	SERB	PI	Completed
4	Development of guideline for prevention & mitigation of explosion hazard by risk assessment and determination of explosibility of Indian coal incorporating risk based mine emergency evacuation and re-entry protocol [Project No. : CIL (4)/2015-16/461/ Mining Engg.].	833.57	CIL	Member	Ongoing
5	Methane drainage prior to mining [DST-SERB/(190)/ 2018-2019/557/ME]	300.11	DST	Co-PI	Ongoing
6	Development of a highly selective and rapidly responsive optical fiber methane sensor for on-site application in deep coal mines	39.036 lakh	CIL	Co-PI	Submitted
7	Advanced AI-Driven Cyber-Physical Systems (CPS) for Sustainable Water Management and Treatment in Coalbed Methane Operations in India	Rs.98.87 Lakh	TEXMIN	PI	Submitted

XVIII. LABORATORY DEVELOPMENT

- Established one **radiation measurement and control laboratory**

XIX. COURSE DEVELOPED

- Coal Mine Methane Recovery and Utilization (MNO304) – Open Elective for 6th Semester B.Tech students

XX. CONSULTANCY PROJECTS

- Involved with various consultancy projects as member in different uranium mines of UCIL, coal mines, zinc mines, etc. (***Details are provided in Annexure-1***)

XXI. PROFESSIONAL DEVELOPMENT PROGRAMME/OUTREACH PROGRAMME

- **Coordinator**, Training Programme on "**Airborne Respirable Dust Monitoring**" **(Project No. EDP/7126/2023-2024**) for the mine professionals of PBCMP, NTPC Ltd., Badkagaon, Hazaribagh (Amount: Rs. 3,00,000/- + Rs. 54,000/- (GST@18%) = Rs. 3,54,000/-).
- **Co-Coordinator**, Executive Development Programme on ***"Controlled Blasting Management for Road Construction in Himalayan Territory*** **(Project No. *EDP/7032/2022-2023*)*"*** for the executives of BRO (Border Roads Organisation) during September 12 – 24, 2022. (Amount: Rs. 19,71,020/- + Rs. 3,54,784/- (GST@18%) = Rs. 23,25,804/-).
- **Co-Coordinator**, Executive Development Programme on "**Controlled Blasting Management and Safety for Road Construction for BRO Officers (Project No. EDP/7129/2023-2024**)" for the executives of BRO (Border Roads Organisation) during January 08 – 20, 2024. (Amount: Rs. 10,83,368/- + Rs. 1,95,007/- (GST@18%) = Rs. 12,78,375/-).

- **Co-Convener**, International Conference on "**Safe, Smart and Sustainable Mining (3SM)**" [**Project No.: IIT(ISM)(CONFERENCE)(3SM)/2023-2024/35/MNE**] during 16-18 December 2023 at Hotel Fairfield by Marriott Goa Benaulim (Near Margao), Goa.
- **Co-Convener**, International Conference on "Mine Ventilation and Environment for Green Mining (MVEGM-2024)" [Project No.: IIT(ISM)(CONFERENCE)(3SM)/2024-2025/64/MNE] held at Puri, Odisha, India during 20-22 December, 2024.
- Involved as faculty advisor of Kartavya for organizing the annual event "PRAKASH-2025", An NGO under the aegis of CSM, IIT (ISM), Dhanbad, held in the Penman Auditorium on 19.01.2025.

XXII. RESEARCH GUIDANCE

- **PhD student guidance**

Sl.No.	Admission No	Name of students	Title of the project	Status
1	17DR000420	Mr Imran Athar Beg	Investigation on the effect of ventilation on radiation dose received by the miners in low ore grade underground uranium mines	Awarded (5.9.2022)

2	19DR0002	Mr Abhisek Kumar (Part-time)	Modelling of spontaneous combustion characteristics in Indian coal mines	Ongoing
3	20DP0069	Mr Laxman Pal (Part-time)	A study of thermal properties of coal and coal measure rocks, and their correlation with simulated range of virgin rock temperatures for underground coal mines of Raniganj Coalfield	Ongoing
4	23DR0256	Mr Kunal Rungta (Full-time)	Exact topic to be finalized after completion of his course works	Ongoing

- **M.Tech Student guidance**

Sl. No	Admission No	Name of students	Title of the project	Status
1	2013JE1031	Ayush	Assessment of the control measures against the development of coal dust explosions in underground coal mines	Completed (2018)
2	2013JE0691	Mr Mayuresh Soni	Mathematical modelling for prediction of ventilation requirement to dilute the different noxious gases present in underground mine atmosphere,	Completed (2018)
3	16MT001339	Mr Mohit Agrawal	Effect of ventilation on radiation exposure Of miner in underground mines.	Completed (2019)
4	17MT001555	Neha Verma	Investigation into the factors influencing the selection of main mechanical ventilator in tunnels	Completed (2019)
5	17MT001602	Sagar Gupta	Investigation on the various parameters considered for optimum size of the	Completed (2019)

			airway in an underground mine.	
6	17MT002279	Shubham Ghosh	Investigation on the prevention and mitigation of coal dust explosion hazards in Indian underground Coal Mines	Completed (2019)
7	2013JE0767	Vimal Kumar	Study on the selection of the equipment to achieve the desired ore production in an opencast mine.	Completed (2019)
8	18MT0358	Biswanath Chatterjee	Evaluation of climatic condition inside underground environment	Completed (2020)
9	19MT0051	Ananjay Kumar Gond	Study on refrigeration cooling capacity requirement for providing the comfortable underground tunnel environment conditions	Completed (2021)
10	19MT0125	Deepak Kumar	Selection of suitable method for controlling the airborn respirable dust in tunnels	Completed (2021)
11	19MT0150	Haripada Kole	Control of heat flow in degree II gassy coal mines	Completed (2021)
12	20MT0016	Abinash Chirosantosh Sahoo	Assessment and characterisation of airborne respirable dust due to different mining activity in an opencast coal mine	Completed (2022)

- **B.Tech Students guidance:** More than 30.

XXIII. PUBLICATIONS

- **Book**: "Underground Metal Mining". *Authors*: Prof. S.C. Bhowmik, Prof. Patitapaban Sahu, & Prof. P.K. Behera, *Publisher*: SUBELA PUBLISHERS, Naradari, Byabattarhat, Purba Medinipur, *Year*: 2023.

The research papers published are available in the following link: "**https://scholar.google.co.in/citations?user=mqmT4rEAAAAJ&hl=en**"

- **International refereed journals**

1. **Sahu, P.**, Mishra, D.P., Panigrahi, D.C., Jha, V.N., Patnaik, R.L., 2013. Radon emanation from low-grade uranium ore. Journal of Environmental Radioactivity, Vol. 126, pp. 104 - 114. (***Elsevier, Thomson Reuter, I.F. 2.655, Q1***)
2. Mishra, D.P., **Sahu, P.**, Panigrahi, D.C., Jha, V.N., Patnaik, R.L., 2014. Assessment of ^{222}Rn emanation from ore body and backfill tailings in low-grade underground uranium mine. Environmental Science and Pollution Research, Vol. 21(3), pp. 2305 – 2312. (***Springer, Thomson Reuter, I.F. 5.190, Q2***)
3. **Sahu, P.**, Mishra, D.P., Panigrahi, D.C., Jha, V.N., Patnaik, R.L., Sethy, N.K., 2014. Radon emanation from backfilled mill tailings in underground uranium mine. Journal of Environmental Radioactivity, Vol. 130, pp. 15 – 21. (***Elsevier, Thomson Reuter, I.F. 2.655, Q1***)
4. Panigrahi, D.C.**, Sahu, P.**, Mishra, D.P., Jha, V.N., Patnaik, R.L., 2014. Assessment of inhalation exposure potential of broken uranium ore piles in low-grade uranium mine. Journal of Radioanalytical and Nuclear Chemistry, Vol. 302 (1), pp. 433 - 439. (***Springer, Thomson Reuter, I.F. 1.754, Q3***)
5. **Sahu, P.**, Panigrahi, D.C., Mishra, D.P., 2014. Sources of radon and its measurement techniques in underground uranium mines – an overview. Journal of Sustainable Mining, Vol. 13 (3), pp. 11- 18. (***Scopus***)
6. **Sahu, P.**, Panigrahi, D.C., Mishra, D.P., 2015. Evaluation of effect of ventilation on radon concentration and occupational exposure to radon daughters in low ore grade underground uranium mine. Journal of Radioanalytical and Nuclear Chemistry, Vol. 303, pp. 1933-1941. (***Springer, Thomson Reuter, I.F. 1.754, Q3***)
7. Panigrahi, D.C.**, Sahu, P.**, Mishra, D.P., 2015. An improved mathematical model for prediction of air quantity to minimize radiation levels in underground uranium mines. Journal of Environmental Radioactivity, Vol. 140, pp. 95 – 104. (***Elsevier, Thomson Reuter, I.F. 2.655, Q1***)
8. Panigrahi, D.C., Mishra, D.P., **Sahu, P.,** 2015. Evaluation of inhalation exposure contributed by backfill mill tailings in underground uranium mine. Environmental Earth Sciences, Vol. 74, pp. 4327-4334. (***Springer, Thomson Reuter, I.F. 3.119, Q1***)

9. Panigrahi, D.C.**,** Mishra, D.P.**, Sahu, P.**, Bhowmik, S.C., 2015. Assessment of radiological parameters and radiation dose received by the miners in Jaduguda uranium mine, India**.** Annals of Nuclear Energy**,** Vol. 78, pp. 33 – 39. (***Elsevier, Thomson Reuter, I.F. 1.312, Q1***)
10. **Sahu, P**., Panigrahi, D.C., Mishra, D.P., 2016. A comprehensive review on sources of radon and factors affecting radon concentration in underground uranium mines**.** Environmental Earth Sciences, Vol. 75: 617, pp. 1-19. (***Springer, Thomson Reuter, I.F. 3.119, Q1***)
11. Panigrahi, D.C., **Sahu, P.**, Banerjee, M., 2018. Assessment to ^{222}Rn and gamma exposure of the miners in Narwaphar underground uranium mine, India. Radiation Physics and Chemistry, Vol. 151C, pp.225-231. (***Elsevier, SCI, I.F.2.776, Q1***)
12. Beg, I.A., **Sahu, P.**, Panigrahi, D.C., 2021. ^{222}Rn dose of mine water in different underground uranium mines. Radiation Physics and Chemistry, Vol. 184, pp. 109468 (1-6). (***Elsevier, SCI, I.F.2.776, Q1***)
13. Beg, I.A., **Sahu, P.**, Panigrahi, D.C., 2021. Multivariate regression analysis to assess the ^{222}Rn exhalation rates from uranium ores and their relative contributions to the ^{222}Rn concentration in the underground uranium mine atmosphere. Radiation Physics and Chemistry, Vol. 184, pp. 109484 (1-7). (***Elsevier, SCI, I.F.2.776, Q1***)
14. **Sahu, P.**, Beg, I.A., Panigrahi, D.C., 2023. An investigation of ^{222}Rn exhalation rates from backfill mill tailings influenced by the different parameters in underground uranium mines. Radiation Physics and Chemistry, Vol. 203, 110648 (1-11). (***Elsevier, SCI, I.F.2.776, Q1***)
15. **Sahu, P.**, Beg, I.A., Panigrahi, D.C., 2023. Comparative study of radon sources and associated health risk in four underground uranium mines. Environmental Monitoring and Assessment, Vol. 195, 400. (***Springer, Thomson Reuter, I.F. 3.307, Q3***)
16. Mishra, D.P., Verma, S.K., Bhattacharjee, R.M., Upadhyay, R., **Sahu, P.**, 2023. Geological and microstructural characterisation of coal seams for methane drainage from underground coal mines. Bulletin of Engineering Geology and the Environment, Vol. 82, 343. (***Springer, Thomson Reuter, I.F. 4.2, Q2***)
17. Beg, I.A., **Sahu, P.,** 2024. Contribution of mine water and uranium ore rocks to the ^{222}Rn-induced radiation dose received by the mine workers in a low-ore grade underground uranium mine, India. Journal of Sustainable Mining, Vol. 23, Issue 2,

pp. 177-184. https://doi.org/10.46873/2300-3960.1412. (Journal Impact Factor – 1, Q4)

18. **Sahu, P.**, Beg, I.A., Bhowmik, S.C., Panigrahi, D.C., 2024. Evaluation of radiation dose associated with underground uranium mining activities in East Singhbhum, Jharkhand, India. Radiation Physics and Chemistry, Vol. 223, 111977 (1-7).

- **National refereed journal**

19. **Sahu, P.**, Mishra, D.P., Panigrahi, D.C., 2015. Emanation of radon in underground uranium mines - an overview. Journal of Mines, Metals and fuels, Vol. 63 (3), pp. 45 – 49. (***Scopus***)
20. Kumar, P., Mishra, D.P., Panigrahi, D.C., **Sahu, P., 2017.** Numerical investigation of ventilation effect on methane layering behavior in underground coal mines. Current Science, Vol. 112, pp. 1873-1881. (***Scopus, I.F. 1***)
21. **Sahu, P.**, Beg, I.A., Panigrahi, D.C., 2020. Mathematical modelling of radon (^{222}Rn) exposure of underground mine workers: a comprehensive review. Journal of Mines, Metals and fuels, Vol. 68 (11&12), pp. 349 – 353, 371. (***Scopus***)

- **International conferences**

22. **Sahu, P.,** Mishra, D.P., Panigrahi, D.C., 2014. Studies on ^{222}Rn emanation from uranium ore and effect of ventilation on ^{222}Rn concentration in mine air. In: Glehn, F.v. & Biffi, M., Proceedings of 10th International Mine Ventilation Congress (IMVC), Published by the Mine Ventilation Society of South Africa, ISBN 978-0-620-61487-0, 2-8 August, pp. 625 – 632.
23. **Sahu, P.,** Mishra, D.P., Panigrahi, D.C., 2014. Monitoring of radon gas and its progeny in underground uranium mines. In: Jamal A., Kumar A., Sharma S.K., Singh R.P.& Karmakar N.C. (Eds.), Environmental Impact and Management in Mining & Mineral Based Industries, Proceedings of International Symposium on Environmental Management and Current Practices in Mining & Allied Industries (EMPM-2014), Organized by Department of Mining Engineering, Indian Institute of Technology (Banaras Hindu University), Varanasi, India, ISBN: 978-81-87760-20-7, 13-15 February, pp. 529 - 541.

24. Beg, I.A., **Sahu, P.,** Banerjee, M., Panigrahi, D.C., 2019. A review on 222Rn exposure of the miners in underground mines. International Conference and Exhibition on Energy & Environment: Challenges & Opportunities (ENCO-2019), 20-22 February, pp. 272-278.
25. **Sahu, P.,** Jayanti, L.M., Gangavarapu, A., Mehta, C., Vitthal, R. A., Moyal, C., 2023. Prediction of Airborne Particulate Matter in an Opencast Coal Mine Using Machine Learning. In: Choudhary B.S. & Sahu P. (Eds.), International Conference on "Safe, Smart, and Sustainable Mining (3SM)", 16-18 December, Organized by Department of Mining Engineering, Indian Institute of Technology (ISM), Dhanbad, India.
26. **Sahu, P.,** Panigrahi, D.C., Kumar, A., 2024. Spontaneous combustion and mine fires in Indian coal mines – characterization, detection and control measures. In: Belle, B. & Si, G., Proceedings of 12th International Mine Ventilation Congress (IMVC), Published by the Australasian Institute of Mining and Metallurgy, Sidney, Australia, ISBN 978-1-922395-29-0, 11-15 August, Volume-1, pp. 505 – 513.
27. **Sahu, P.,** Sahoo, A., Rungta, Kunal, 2024. Monitoring and Measurement of Airborne Respirable Dust in Opencast Coal Mines: A Case study. In: Mishra, D.P., Sahu, P. & Behera, B.(Eds.), International Conference on "Mine Ventilation and Environment for Green Mining (MVEGM-2024)", 20-22 December, Organized by Department of Mining Engineering, Indian Institute of Technology (ISM), Dhanbad, India.

- **National conferences**

28. **Sahu, P.**, Panigrahi, D.C., Mishra, D.P., 2013. Radiation hazards in underground uranium mining. In: Singh S.K., Bhattacharjee R.M., Sinha V.P., Mishra D.P. (Eds.), Proceedings of National Seminar on Mining Industry: Challenges & Opportunities (MICO'13), Organized by Indian Mines Managers' Association (IMMA) and Indian School of Mines (ISM), Dhanbad – 826004, India, 28-29 September, pp. 51 - 58.
29. **Sahu, P.**, Mishra, D.P., Panigrahi, D.C., 2015. Radiation in underground uranium mines and its associated hazards – a review. In: Malick S.R. (Ed.), Proceedings of

National Seminar on Challenges in Mining & Mineral Industries (CMMI-2015), Organized by Government College of Engineering, Keonjhar, India, 26 September, pp. 35-48.

30. Baishya, A., Verma, S.K., Mishra, D.P., Panigrahi, D.C., Bhattacharjee, R.M., Sahu, P., Upadhyay, R., 2019. Methane drainage prior to mining-an overview. Proceedings of National Conference on Recent Advances in Mining Technology (RAMT-2019), Organised by Acharya Institute of Technology, Bengalru, India, 23-24 May,
31. Beg, I.A., **Sahu, P.,** Panigrahi, D.C., 2020. Assessment of the radon dose received by the miners in underground workplaces- A critical review. Proceedings of National Conference on Advances in Mining (AIM-2020), organised by CSIR-CIMFR, Dhanbad & IEI, Dhanbad Local Centre, 14-15 February, pp. 61 – 67.
32. Sahoo, A.C., Sahu, P., 2022. Characterization of airborne respirable dust particles emitted from an opencast coal mine. Proceedings of Conference on Challenges in Safety and Environmental Management in Mines, organised by NIT Rourkela, 17-19 June, 2022

XXIV. ACADEMIC RECOGNITION

- Editorial Board Member in the International Journal of Human Computer Interaction and Data Mining (https://adrjournalshouse.com/index.php/Int-Journal-data-mining-computer/about/editorialTeam)
- Editorial Board Member in the Journal Publication of International Research for Engineering & Management (JOIREM) (https://joirem.com/editorial-team/)
- Editorial Board Member in Journal of Mining Technologies and Mineralogy (https://journalofmining.com/journal/editorial_board_member/Patitapaban-Sahu/Indian-Institute-of-Technology-(Indian-School-of-Mines)/515)
- Reviewer, Department of Science & Technology (DST-SERB), Govt. of India
- Reviewer, Journal of Environmental Radioactivity, Elsevier
- Reviewer, Applied Radiation and Isotopes, Elsevier
- Reviewer, Annals of Nuclear Energy, Elsevier
- Reviewer, Environmental Technology & Innovation, Elsevier
- Reviewer, Journal of Engineering and Technological Sciences
- Reviewer, Environmental Earth Sciences, Springer
- Reviewer, International Journal of Oil, Gas and Coal Technology, Inderscience
- Reviewer, Nuclear Science and Techniques, Springer
- Reviewer, Journal of Radioanalytical and Nuclear Chemistry, Springer
- Reviewer, Safety Science, Elsevier
- Reviewer, Soil Dynamics and Earthquake Engineering
- Reviewer, PLOS ONE
- Reviewer, Environment Health

XXV. MEMBERSHIP OF PROFESSIONAL BODIES

- Life Membership of Mining, Geological and Metallurgical Institute (MGMI) (**LM – 10905**)
- Life member, Mining Engineers Association of India (**LM. No. 5165/DHN**)
- Society for Mining, Metallurgy & Exploration Inc.

Annexure – 1

As per records hosted on MIS

Sl. No.	Name of PI/Co-PI etc.	Sponsoring Authority	Topic/Field	Date of Sanction & Duration	Total Value (excluding taxes)	Amount Released	Completed/ Ongoing
1	Prof D.C. Panigrahi (CI) & **Dr Patitapaban Sahu (Member)**	Hindustan Zinc, Ltd.	Field investigations, modelling and design on ventilation system of Sindesar Khurd Mine, Hindustan Zinc Ltd. (Phase IV - 4th year period)	From 01.05.18 to 21.10.18	Rs. 1872450/-	Rs. 1872450/-	Completed
2	Prof D.C. Panigrahi (CI) & **Dr Patitapaban Sahu (Member)**	SRB International Pvt. Ltd. Noida	A study of performance and behavior self contained Self Rescuers (SCSRs) by full bench tests as per IS 15803:2008 and adopted by DGMS for the samples manufactured by M/s	From 24.08.18 to 03.10.18	Rs. 155000/-	Rs. 155000/-	Completed

			Closed JSC OZONE GSPO, Russia and submitted by SRB International Pvt. Ltd., Noida.				
3	Prof D.C. Panigrahi (CI) & **Dr Patitapaban Sahu (Member)**	Swati Safesecure Equipments (P) Ltd.	A study of performance and Behavior Self Contained Self Rescuers (SCSRs) by full bench tests as per IS15803:2008 and adopted by DGMS for the Samples Manufactured by Roshimzaschita Corporation Russia and Submitted by Swati Safesecure Equipments (P) Ltd. Mumbai.	From 24.08.18 to 28.9.18	Rs. 155000/-	Rs. 155000/-	Completed
4	Prof D.C. Panigrahi (CI) & **Dr Patitapaban Sahu (Member)**	Tata Steel Ltd.	Analysis and interpretation of mine air samples of Sijua Colliery, Tata Steel Limited for assessing the status with	From 04.10.18 to 18.6.18	Rs. 472500/-	Rs. 472500/-	Completed

			respect to spontaneous combustion /fire and explosibility of atmosphere by using the ASSESS FIRE software developed at IIT (ISM) Dhanabd				
5	Prof D.C. Panigrahi (CI) & **Dr Patitapaban Sahu (Member)**	Indu SCCL CGME Consontium	Modelling of ventilation system for establishing connection with the new shaft for ventilation of XV/XVI Seam workings in Moonidih Colliery, BCCL being operated by INDU-SCL-CGME Consortium	From 28.03.18 to 28.05.18	Rs. 350000/-	Rs. 350000/-	Completed
6	Prof D.C. Panigrahi (CI) & **Dr Patitapaban Sahu (Member)**	ECL	A study into the performance and behavior of mine ventilation and safety instruments, and analysis	From 14.11.18 to 29.5.19	Rs. 112396/-	Rs. 112396/-	Completed

			and detailed interpretationof air samples of ECL mines (SSI Colliery, Khoodia Colliery, Sodepur(R) Colliery, Chinakuri Mine No. 1 and Kunustoria Colliery), Eastern Coalfields Ltd.				
7	Prof D.C. Panigrahi (CI) & **Dr Patitapaban Sahu (Member)**	Tata Steel Ltd.	A study of ventilation system of coal mines of Jharia Division for ascertaining the degree of gassiness of Digwadih and 6 & 7 Pits Collieries, Tata Steel Ltd.	From 2.8.18 to 30.9.19	Rs. 2300000 /-	Rs. 2300000/-	Completed
8	Prof D.C. Panigrahi (CI) & **Dr Patitapaban Sahu (Member)**	BCCL	A study into the performance and behavior of mine ventilation and safety instruments including the functionability of self	From 24.11.18 to 18.1.19	Rs. 208977/-	Rs. 208977/-	Completed

			contained chemical self rescuers (SCSRs), and analysis and detailed interpretation of air samples of BCCL (PB Area, MRS-Dhansar, AKWM Colliery, Tetulmari Colliery and Bhowrah (North) Colliery and Eastern Jharia Area), Bharat Coking Coal Ltd.				
9	Prof D.C. Panigrahi (CI) & **Dr Patitapaban Sahu (Member)**	Hindalco Industries Ltd., Raigarh	A study into the performance and behavior of mine ventilation and safety instruments, and analysis and detailed interpretation of air samples of Gare Palma IV/4 andIV/5	From 18.12.18 to 13.4.19	Rs. 184200/-	Rs. 184200/-	Completed

			Mines of Hindalco Industries Limited, Raigarh.				
10	Prof D.C. Panigrahi (CI) & **Dr Patitapaban Sahu (Co-CI)**	BCCL	A study into the performance and behavior of mine ventilationand safety instruments including the functionability of self contained chemical self rescuers (SCSRs), and analysis and interpretation of fire area and general body air samples of BCCL mines (Bhagaband Colliery, Mines Rescue Station-Dhansar, Moonidih Colliery, AKWM Colliery, Phularitand Collieryt, 10/12 Pits K.B. Colliery, Gopalichuk	From 27.5.19 to 30.8.19	Rs. 614941/-	Rs. 614941/-	Completed ***Contd…***

			Collieryt, Bera Colliery), Bharat Coking Coal Ltd.				
11	Prof D.C. Panigrahi (CI) & **Dr Patitapaban Sahu (Co-CI)**	Hindustan Copper Ltd.	Field investigations, modelling and simulation studies for reorganizing the ventilation system to improve the workplace environment for the workings of Khetri and Banwas North Block at Khetri Copper Mine of Hindustan Copper Ltd. Rajasthan.	From 24.7.19 to 25.11.19	Rs. 1199995 /-	Rs. 119999 5 /-	Completed
12	Prof D.C. Panigrahi (CI) & **Dr Patitapaban Sahu (Co-CI)**	SECL	A study into the performance and behavior of mine ventilation and safety instruments including the functionability of self contained chemical self rescuers	From 20.8.19 to 13.12.19	Rs. 560969/-	Rs. 560969/ -	Completed

			(SCSRs) of SECL mines (Baheraban dh Colliery, Bishrampur Area, Bhatgaon Area and Korba Area), South Eastern Coalfields Limited.				
13	Prof D.C. Panigrahi (CI) & **Dr Patitapab an Sahu (Co-CI)**	WCL, Nagpur	A study of performanc e and behavior Self Contained Self Rescuers (SCSRs) by full bench tests as per IS 15803:2008 and adopted by DGMS for the samples submitted by Western Coalfields Ltd., Nagpur.	From 4.1.20 to 14.2.20	Rs. 542500/-	Rs. 542500/ -	Complete d
14	Prof D.P. Mishra (CI) & **Dr Patitapab an Sahu (Co-CI)**	Kusunda colliery, BCCL	Scientific study to restrict and control the fire in subsidence and fire affected area in Basseriya 4 no. Basti near Durga Mandir at	30.08.24 (Duration: 4 months)	Rs. 15,00,000 /-		Ongoing

			Basseriya Gondudih Khas Kusunda Colliery of Kusunda area				
15	**Dr Patitapaban Sahu (CI)**	Bastacolla, BCCL	Proximate Analysis of Steam Fraction of Coal Seam II (BOT) of ROCP/SJ Colliery, Bastacolla Area	17.09.2024 (1 week)	Rs. 57,000/-	Rs. 57,000/-	Ongoing