Brief Bio-data

- 1. Name: Dr. Amit Kumar Singh
- 2. Date of Birth: 14-10-1970
- 3. Current Position and Address: Senior Technical Officer-1, Rockmass Characterisation and Innovative Mining Methods Section, CSIR-CIMFR, Barwa Road, Dhanbad, 826015 (Jharkhand), Contact No.- 9431168837, Email- amit@cimfr.nic.in/amitcmri@yahoo.co.in
- 4. Educational qualifications:

SI. No.	Degree	Year	University/Institute	Subject
1.	Ph. D.	2019	MGCGV Chitrakoot, Satna (M.P)	Agriculture Extension
2.	M. Sc.	1996	MGCGV Chitrakoot, Satna (M.P)	Agriculture Extension
3.	B. Sc.	1993	Purvanchal University, Jaunpur (U.P)	Agriculture

5. Work experience:

Designation	Institute	From	То	Nature of work
Senior Technical Officer-1	CSIR-CIMFR	07-04-2014	Till date	R&D
Technical Officer	CSIR-CIMFR	07-04-2009	06-04-2014	R&D
Senior Technical Assistant	CSIR-CIMFR	07-04-2004	06-04-2009	R&D
Technical Assistant	CSIR-CIMFR	07-04-1999	06-04-2004	R&D

6. Work Area(s)/ Specialization:

Strata mechanics covering rock mechanics and mining methods, ground control, underground instrumentation, and simulation of underground mining structures.

7. Major contributions:

I devoted the last twenty-two years of my services to different investigations related to more than 90 in-house and industry-sponsored projects, including three S&T projects of the Ministry of Coal, Govt. of India. My R&D efforts and management skill resulted in the successful completion of different industry-sponsored projects, S&T projects. My contributions are well proven and found to be of immense importance for the excellence of production, productivity, safety, and conservation. I also associated in a collaborative R&D work with the Institute of Geonics, Czech Republic. Some popular methods for safe and clean extraction of thick coal seams, appreciation from the involved industry, a considerable number of publications in the best rock-mechanics/mining engineering journals/seminars symposium. Based on simple ideas and results of different field and laboratory investigations, my significant contributions are:

- Associated as a principal investigator during field instrumentation, monitoring, and analysis of the data during underground extraction of thick coal seam by cable bolting based depillaring of total thickness in a single lift; especially at Madhusudanpur Colliery, ECL.
- Mining method/manner of pillar extraction using continuous miner technology for depillaring of developed coal seams.
- Optimisation of design of active reinforcement-based breaker line support for a fully mechanised depillaring face with continuous miner and shuttle car.
- Strata movement analysis through instrumentation and monitoring during underground extraction of No. 1 seam by a continuous miner with ram car combination at GDK-11 Incline mine, SCCL and L1B seam at Pinoura Mine, SECL.

8. No. of Research Publications:

- Papers in Journals: Sixteen
 In conference proceedings: Ten
- Invited lectures delivered:
- List of best 05 publications:
- (i) Kumar A, Kumar D, Singh AK, Ram S, Kumar R, Gautam A, Singh R, **Singh, AK** (2019). Roof sagging limit in an early warning system for safe coal pillar extraction. International

Journal of Rock Mechanics & Mining Sciences, 123, 104131. DOI: 10.1016/j.ijrmms.2019.104131.

- (ii) Singh AK, Kumar A, Kumar D, Singh R, Ram S, Kumar R, Singh, AK (2021). Field and Simulation Studies for Mechanised Depillaring Below Incompetent Geological Formations of an Indian Coalmine. Journal of Geological Society of India, Vol. 97, April 2021, pp 405-421, DOI: 10.1007/s12594-021-1698-y.
- (iii) Kumar, R., Mishra, A. K., Singh, A. K., Singh, A. K., Ram, S., and Singh, R. (2016): Depillaring of total thickness of a thick coal seam in single lift using cable bolts: a case study. International Journal of Mining Science and Technology, 26(2016), pp. 223-233.
- (iv) Singh, Rajendra, Ram, Sahendra, Singh, Arun Kumar, Kumar, Ashok, Kumar, Rakesh and Singh, Amit Kr., (2017): Rock Mechanics Considerations for Roof Bolt-Based Breaker Line Design. Procedia Engineering (Symposium of the International Society for Rock Mechanics), 191 (2017) 551 – 559.
- (v) Singh, R. Ram, Sahendra, Singh, Amit Kumar, Prasad Shailly and Buragohain, John (2004): Underground extraction of contiguous coal seams/sections consisting thin parting: a case study. Journal of South African Institute of Mining and Metallurgy (SAIMM), 104(1), pp. 17-27.
- Books/Chapters authored/edited: One
- 9. List of 5 Major Contract R&D Projects:
 - (i) Development of a model vis-à-vis study of parameters influencing abutment loading of pillars at a depillaring face of shallow depth cover and under massive strata, sponsored by Ministry of Coal, Govt. of India.
 - (ii) Development of a mining method for final extraction of a critically thick coal seam standing on pillars along the roof horizon, sponsored by Ministry of Coal, Govt. of India.
 - (iii) Scientific study of strata movement during widening and heightening of existing galleries and depillaring of CM panels A1-A and A1-B of No. 1 at GDK-11 Incline mine, RG-I Area, SCCL through underground instrumentation and monitoring.
 - (iv) Scientific study to assess the efficacy of the support system during the working of the panel and thereafter continuously monitor the strata movement from the outside of the panel till the completion of extraction in the panel and two subsequent years at Sarni UG Mine E3 panel of Pathakhera Area, WCL.
 - (v) Advice for safe depillaring of LK-6, LK-7, and LK-8 panels of Lower Kajora seam at Central Kajora Colliery by Cable bolting based depillaring method through underground instrumentation and monitoring
- 10. (a) Name of Patents/Copyrights applied /granted/commercialized:
 - (i) A model for rib/snook design in mechanised depillaring under moderate roof strata.
 - (ii) A Method for Efficient Design of Breaker Line Support in Mechanized Depillaring.
 - (b) Technologies/Products /knowhow/Services developed:
 - Cable bolting based mechanised depillaring method for extraction of thick and difficult coal seams.
 - Underpinning based depillaring method for thick and contiguous seams/sections under weak and laminated parting.
 - Empirical model to assess nature and amount of mining induced stress development over the coal pillars during a depillaring operation and
 - Efficient design of rib and breaker line support in mechanized depillaring.
- 11. Honors/Awards/Recognitions/Fellowships/Scholarships/Professional Memberships received: 12. Societal Contributions:

Our R&D contributions encourages the industry to adopt the underground mining methods for coal extraction which results into reduction in disastrous environmental impacts (air, Noise and water pollution) on surrounding area, flora and fauna by opencast mining.