Curriculum Vitae

1. Name: Prof. Ashok Kumar
2. Current Position and Address: Assistant Professor, Department of Mining Engineering, Indian Institute of Technology (ISM) Dhanbad, Jharkhand 826004
3. Email: ashokmin@iitism.ac.in / ashok.bhu.min09@gmail.com / akcimfr@gmail.com
4. Educational Qualifications:

Degree	Institute	Year of Passing	Subjects	% of Marks/ CGPI
Doctor of Philosophy (Ph.D.)	Indian Institute of Technology (Indian School of Mines) Dhanbad	2021	Mining Engineering	NA
Master of Technology (M.Tech.)	Academy of Scientific & Innovative Research	2015	Mine Safety Engineering	9.79 (absolute)
Bachelor of Technology (B.Tech.)	Indian Institute of Technology (Banaras Hindu University) Varanasi	2013	Mining Engineering	8.35 (absolute)
12th	Kendriya Vidyalaya Kankarbagh Patna, Bihar Central Board of Secondary Education	2008	Mathematics, Physics, Chemistry, English, Hindi	84.40
10th	Kendriya Vidyalaya Kankarbagh Patna, Bihar Central Board of Secondary Education	2006	Mathematics, Science, Social Science, Sanskrit, English	86.40

5. Work Experience:

S. No.	Designation	Institution/Company	From	To	Nature of work
i.	Assistant Professor	Indian Institute of Technology (Indian School of Mines) Dhanbad	1st July, 2022	Continued	Teaching & R&D
ii.	Senior Scientist	CSIR-Central Institute of Mining & Fuel Research, Dhanbad	13th April, 2020	30th June, 2022	R&D
iii.	Scientist	CSIR-Central Institute of Mining & Fuel Research, Dhanbad	11th April, 2016	12th March, 2020	R&D
iv.	Scientist-I	National Institute of Rock Mechanics, Bengaluru	4th December, 2015	10th April, 2016	R&D
v.	Trainee Scientist	CSIR-Central Institute of Mining & Fuel Research, Dhanbad	8th August, 2013	3rd December, 2015	R&D

6. Area of Specialization:

   Underground Mining Methods, Strata/Rock Mechanics, Drilling and Blasting, Mine Ventilation, Numerical Modeling, Underground Instrumentation and Monitoring of Strata, Support Design, Rockmass Characterisation, FLAC3D, AUTOCAD

7. Teaching Experience:

IIT (ISM), Dhanbad July 2022 – Current [Assistant Professor, Mining Engineering]

Theory:

1. Excavation methods for tunnels and Caverns (MNC 535)
2. Modern Surveying Techniques (MNO 301)
3. Managerial Decision Making (MND 500)
4. Deep Coal Mining (MND 412)
5. Mine Environmental Engineering (MND 406)
6. Mine Planning & Economics (MNC 301)

Laboratory:

1. Mine Ventilation Practical – II (MNC303)
2. Mine Simulation & Data Analytics Practical (MNC 509)
3. Computer Aided Mine Planning & Design

Monsoon 2024-25
Theory: 2 Course
Bachelor of Technology (B. Tech.) (5^{th} Sem) – Mine Planning & Economics (MNC 301)
Bachelor of Technology (B. Tech.) (5^{th} & 7^{th} Sem) - Modern Surveying Techniques (MNO 301)
Laboratory: 1 Course
Bachelor of Technology (B. Tech.) (5^{th} Sem) – Mine Ventilation Practical – II (MNC303)

Summer 2023-24
Theory: 1 Course
Doctor of Philosophy (Ph. D.) (1^{st} Sem) – Excavation methods for tunnels and underground space (MNC 535)

Winter 2023-24
Theory: 1 Course
B. Tech. (8^{th} Sem Mining) + Ph.D. (1^{st} Sem) (Mining) - Deep Coal Mining (MND 412) (Department Elective Subject)

Monsoon 2023-24
Theory: 2 Courses
Doctor of Philosophy (Ph. D.) (1^{st} Sem) – Excavation methods for tunnels and underground space (MNC 535)
Bachelor of Technology (B. Tech.) (7^{th} Sem) – Mine Environmental Engineering (MND 406)
Laboratory: 1 Course
Bachelor of Technology (B. Tech.) (5^{th} Sem) – Mine Ventilation Practical – II (MNC303)

Winter 2022-23
Theory: 1 Course
B. Tech. (6^{th} & 8^{th} Sem) + Int. M.Tech. (8^{th} Sem) + M.Tech. (2^{nd} Sem) + Ph.D. (2^{nd} Sem) (Mining, Computer Science, Civil, Applied Geology, Mechanical, Electrical, Electronics)– Managerial Decision Making (MND 500) (Open Elective Subject)
Laboratory: 1 Course
Master of Technology (M.Tech.) (2^{nd} Sem) - Mine Simulation & Data Analytics Practical (MNC 509)

Monsoon 2022-23
Theory: 2 Courses
Doctor of Philosophy (Ph. D.) (1^{st} Sem) – Excavation methods for tunnels and underground space (MNC 535)
Bachelor of Technology (B. Tech.) (5^{th} & 7^{th} Sem) - Modern Surveying Techniques (MNO 301)

8. Research Projects:

- R&D : 03

1. Project title: Field and simulation-based investigation of width of spalling during pillar extraction in Bord and Pillar mining method
Project value: Rs. 15 lakhs
Sponsoring Agency: Indian Institute of Technology (Indian School of Mines) Dhanbad
PI: Prof. Ashok Kumar
Status: On-Going

2. Project title: Development of Virtual Reality Mine Simulator for improving safety and productivity in underground coal mines
Implementing Agencies: IIT(ISM), Dhanbad, CMPDI, Ranchi, ECL & NCL
Project Value: 1410.40 Lakhs [IIT-ISM:1320.40 Lakhs and CMPDI: 90.00 Lakhs]
Sponsoring Agency: Coal India Limited R&D Board
Coordinators: Prof. V.M.S.R. Murthy (PI), Prof. Dheeraj Kumar, Prof. Chiranjeev Kumar, Prof. R. M. Bhattacharjee, Prof. Ashok Kumar (Co-PI)
Start Date: 1st September, 2017
End Date: 30th April, 2024 [Completed]

3. Project title: Development and Field Trial of 500 T Capacity SAGES-III for Use with Continuous Miners (Phase- III)
Project Value: Rs. 396.69 Lakhs [IIT-ISM: 85.69 Lakhs and APHMEL: 311.00 Lakhs]
Sponsoring Agency: Ministry of Coal, Government of India
Coordinators: Prof. Dheeraj Kumar, Prof. U. K. Singh & Prof. Ashok Kumar
Start Date: 1st May, 2019
End Date: Ongoing

- Collaborative : 02 (with Czech Republic in the field of Applied Rock Mechanics)
- In-house : 01 (at CSIR-CIMFR Dhanbad)
- Sponsored : 01
- Consultancy : 18

9. Research Scholars

No. of Students in 2022-23

Ph.D. – 1; **M.Tech. –** 2; **B.Tech. –** 6

10. Research Publications:

- Papers in SCI journals : 15 [IJRMMS (Q1)-6, GGGG(Q2)-1, JRMGE(Q2)-1, JGSI(Q3)-3]
- Papers in Non-SCI journals : 6 [JMMF, IMST, Procedia Engineering, MGMI-3]
- In conference proceedings : 21 [International Conferences-16]
- Citations : 200+
- Impact Factor : 60+
- Book Chapter : 1
- Invited/key-note addresses : 0

List of 5 Best Publications:

i. **Kumar A**, Ram S, Kumar D, Singh AK, Kumar R, Gorain S (2022). Development of design norms for rib/snook during mechanised depillaring by continuous miner. Accepted for publication in **Int J Rock Mech Min Sci.**
ii. **Kumar A**, Kumar D, Singh AK, Ram S, Kumar R (2021). Development of empirical model for strength estimation of irregular-shaped-heightened-rib/snook for mechanised depillaring. **Int J Rock Mech Min Sci**, Vol. 148, Article No.104969. (Q1, IF-7.135 and Citations- 2)
iii. **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. **Int J Rock Mech Min Sci,** Vol. 123, Article No.104131. (Q1, IF-7.135 and Citations- 9)

iv. **Kumar A**, Waclawik P, Singh R, Ram S, Korbel J (2019). Performance of a coal pillar at deeper cover: Field and simulation studies, **Int J Rock Mech Min Sci**, Vol. 113, pp. 322-332. (Q1, IF-7.135 and Citations- 27)
v. Singh R, **Kumar A**, Singh AK, Coggan J, Ram S (2016). Rib/snook design in mechanised depillaring of rectangular/square pillars, **Int J Rock Mech Min Sci**, Vol. 84, pp. 119-129. (Q1, IF-7.135 and Citations- 32)

11. (a) No. of Patents Applied for: **2 (National)**

    i. A method to design optimum size of rib/snook in mechanised depillaring under moderate roof strata. Submitted to the concerned authority in CSIR (2015). Investigators: Rajendra Singh, Arun Kumar Singh, Sahendra Ram, Ashok Kumar, Rakesh Kumar and Amit Kumar Singh. (Status- Filed, Application No. 3765DEL2015).
    ii. method for efficient design of roof bolt based breaker line support in mechanised depillaring. Submitted to the concerned authority in CSIR (2016). Investigators: Sahendra Ram, Rajendra Singh, Dheeraj Kumar, Arun Kumar Singh, Ashok Kumar, Rakesh Kumar and Amit Kumar Singh. (Status- Filed, Application No. 201711001140).

    (b) Technologies Developed, ~~Licensed~~ and/or ~~Commercialized~~: **Free to use**

    i. Development of empirical model for strength estimation of irregular-shaped-heightened-rib/snook for mechanised depillaring
    ii. Development of design norms for rib/snook during mechanised depillaring by continuous miner
    iii. Development of a mining method for optimal extraction of coal at shallow cover beneath surface/subsurface features
    iv. Empirical model for estimation of roof sagging limit in an early warning system for efficient and safe mechanised depillaring operations in Indian coalfields
    v. Design of rhomboid-shaped coal pillars and support design during development of a virgin coal seam by continuous miner
    vi. Empirical model for design of rock bolt-based goaf edge support for conventional depillaring with stowing
    vii. Empirical model for correction in strength of heightened coal pillar estimated through numerical simulation
    viii. A method for efficient design of roof bolt-based breaker line support in mechanised depillaring
    ix. A model for rib/snook design in mechanized depillaring under moderate roof strata

12. Foreign Visits:

    i. Visited United States of America from 22-07-2018 to 29-07-2018 and participated in 37th International Conference of Ground Control in Mining 2018 funded by SERB New Delhi under International Travel Support Scheme.
    ii. Visited Czech Republic from 19-06-2017 to 25-06-2017 and participated in EUROCK 2017 under the Bilateral Collaborative Research Program.

13. Details of Professional Memberships:

    i. Mining Engineers' Association of India.
    ii. The Mining Geological and Metallurgical Institute of India.
    iii. Society for Mining, Metallurgy & Exploration.

14. Fellowships/Scholarships: ---

    i. International Travel Support Scheme (ITS) in 2018 from Science and Engineering Research Board (SERB), a statutory body under Department of Science & Technology, Government of India to attend an international conference in United States of America.
    ii. Trainee Scientist scholarship for pursuing M.Tech. from AcSIR at CSIR-CIMFR in 2013.
    iii. Merit cum Means Scholarship holder for all the four years (2009-13) during B.Tech.
    iv. Anand Kumar's Super 30 Scholarship in 2008 for preparation of IIT JEE.

15. Honors/Awards/Recognitions Received:

i. Nominated for CSIR Young Scientist Award 2021 from CSIR-CIMFR Dhanbad.
ii. Nominated for Rocha Medal Award 2021 from International Society of Rock Mechanics (ISRM) India.
iii. MEAI-Sitaram Rungta Memorial Award 2019 for presentation of an excellent paper on mining related issues.
iv. Selected as a member of the Young Leaders Class of 2019 in the Society for the Mining Metallurgy & Exploration, USA.
v. First rank in the class of M.Tech. in Mine Safety Engineering.
vi. Second rank in the class of B.Tech. in Mining Engineering.
vii. Qualified GATE in 2013.
viii. First Prize in X'hibit (a model making competition) organized in METTLE (a technical fest of IIT BHU Mining Engineering).
ix. Pratibha Samman awarded by Chief Minister of Bihar Mr. Nitish Kumar for qualifying IIT-JEE in 2009.
x. Merit Certificate in 10^{th} standard from CBSE for scoring 100% in Mathematics.
xi. Acted as External Examiner at IIT (ISM) Dhanbad for evaluation and viva-voce of 4^{th} Semester MTech Dissertation (2017-18).
xii. Signed an MoU with Institute of Geonics of The Czech Academy of Sciences, Czech Republic for Joint Research in Mining and Applied Rock Mechanics.
xiii. Signed an MoU for 10 years to provide scientific advice during development and depillaring using CM package at Kondapuram Mine SMS Limited**,** Nagpur.
xiv. Treasurer of MGMI Dhanbad Chapter.
xv. Acted as an Examiner in recruitment of Project Assistants and Verification Officer in recruitment of Scientists, Technical Officers and Venue Officer in recruitment of Assistant Gr.III at CSIR-CIMFR.
xvi. Two Year Diploma Course in Spanish Language.
xvii. One Year Certificate Course in Statistical Methods.
xviii. NCC-B and NCC-C certificate holder.
xix. Received First Prize in Hindi Essay Writing Competition during Hindi Pakhwada at CSIR-CIMFR in 2018.
xx. Received Second Prize in Hindi Essay Writing Competition during Hindi Pakhwada at CSIR-CIMFR in 2019.
xxi. Received Third Prize for Technical Articles published in any reputed Hindi journal during Hindi Pakhwada at CSIR-CIMFR in 2021.

16. Major Contributions:

Extensive field study and numerical modelling provided valuable addition to R&D in mining industry. Some of the important R&D contributions are as follows:

i. Published a number of articles in the best mining engineering journals and won a national award from MEAI.
ii. Developed a number of mining technologies and patented the design norms of rib/snook and roof bolts-based breaker line support for varying geo-mining conditions of Indian coalfields during continuous miner based mechanized depillaring.
iii. Developed a roof fall prediction model based on roof sagging values observed in an early warning system during pillar extraction under varying geo-mining conditions.
iv. Developed strata control and monitoring plan (SCAMP) for pillar extraction with stowing and caving panels of Indian coal mines including mechanization and automation of underground instrumentation and monitoring.
v. Field and simulation studies for assessment of performance of a coal pillar and rock bolt under high stress conditions at deeper cover.
vi. Development of empirical model for estimation of strength of an irregular-shaped-heightened-rib/snook and design norms for rib/snook during continuous miner based mechanized depillaring.
vii. Field and numerical simulation studies for an efficient design of roof bolt-based breaker line support for mechanized depillaring with caving and conventional depillaring with stowing under varying geo-mining conditions of Indian coalfields.
viii. Carrying on collaborative work with Institute of Geonics of the Czech Academy of Sciences, Czech Republic for joint research in applied rock mechanics and mining sciences.
ix. Signed an MoU of 10 years between CSIR-Central Institute of Mining and Fuel Research, Dhanbad and SMS Limited, Nagpur for design of different elements of mechanized mining technology for safe extraction

of coal using Continuous Miner (CM) packages at Kondapuram Mine, Manuguru Area, Singareni Collieries Company Limited (SCCL).

x. Successfully completed a number of inhouse and industry-sponsored projects by proving R&D potential in improving coal production with enhanced safety.
xi. Voluntarily involved in different government programs organized at CSIR-CIMFR for dispersion of science among the masses.
xii. Involved in imparting summer or winter training to students of IITs, NITs and different private and government regional colleges.
xiii. Involved in imparting training to the miners about mining methods and strata control.
xiv. Involved in teaching students of rural government schools during weekends.
xv. R&D contributions encourages the industry to adopt the underground mining methods for coal extraction which will result into reduction in environmental impacts (air and water pollution) on surrounding area, flora and fauna due to the opencast mining.
xvi. Quality of coal improves by adoption of underground mining technology which would ensure energy security to the nation as well as society.
xvii. Improved production of coal by large scale underground mining is substituting the import of coal, which will enable the country to be self-reliant in terms of coal (quantity and quality) requirement with sustainable use of coal reserve.
xviii. R&D efforts for the roof bolts-based support design has replaced and reduced the consumption of wooden support and the cost involved, contributing towards the greener economy.

17. Journal Reviewer:

i. International Journal of Mining Science and Technology
ii. Journal of Rock Mechanics and Geotechnical Engineering
iii. Journal of Loss Prevention in the Process Industries
iv. Arabian Journal of Geosciences
v. Energy Exploration & Exploitation

18. List of Consultancy Projects: **22 nos.**

a) Detailed scientific study for determination of strength of pillars for support plan at North Jambad Unit of Bahula Colliery, Kenda Area, ECL. Project Number: CONS/7238/2024-25
b) Preparation of strata control and monitoring plan (SCAMP) of one depillaring panel in a coal seam of Pali underground mine of Johilla area. Project Number: CONS/7177/2023-24
c) 3D Subsidence prediction study of Arjuni East Underground Coal Mine Ultratech Cement Limited. Project Number: CONS/7155/2023-24
d) Feasibility study of the present DPR of Moonidih XV Seam by taking into consideration the prevailing adverse mining conditions. Project Number: CONS/7108/2023-24
e) Scientific study for development of safe method of development and depillaring in a panel using CM technology at Tawa-I Underground Coal Mine. Project Number: TEXMiN/CONS/22-23/001
f) Advice for strata control based safe extraction of coal from the Panel No. 2 of Lower Workable Seam for its safe extraction using Continuous Miner technology at Tawa-II underground coal mine, WCL on the basis of field data supplied by the mine management. Project Number: CNP/5117/2022-23
g) 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. Project Number: SSP/451/2019-20
h) Advice for strata control and safe depillaring in Continuous Miner panel CM-9 (CM-9A and CM-9B panels) of L1B seam at Pinoura Mine, SECL on the basis of field data. Project Number: CNP/4386/2016-17
i) Advice for suitable method of extraction of CM-10 panel of L1B seam with CM technology at Pinoura Mine, Johila Area, SECL. Project Number: CNP/4419/2016-17
j) Advice for safe working of Thick Seam Top and Thick Seam Bottom with Continuous Miner Technology at Kondapuram CM Project SCCL. Project Number: CNP/4496/2016-17

k) Advice for ground stability over the underground galleries lying beneath and within 45m of railway acquired land and working in low cover area (standing on pillars) at Durgapur Rayatwari Colliery (DRC), Chandrapur Area, WCL. Project Number: CNP/4711/2018-19

l) Advice for development of 34LW panel in L-1B seam below Dagdowa village using Continuous Miner with suitable support design, cut out distance and preparation of strata management plan for long term stability of the workings at Vindhya Mine, Johila Area, SECL. Project Number: CNP/4777/2018-19

m) Advice for mechanised depillaring of CM6 panel in L-1B seam using Continuous Miner with suitable support design, strata management plan and manner of extraction at Vindhya Mine, Johilla Area, SECL. Project Number: CNP/4791/2018-19

n) Advice for driving of 6.5m wide galleries with continuous cutting technology (Roadheader or CM) during development in both thick seam bottom and thick seam top of Kondapuram UG Coal Mine, Manuguru Area, SCCL. Project Number: CNP/4865/2019-20

o) Advice for safe method of pillar extraction in the Panel Nos. 1 & 2 of Lower Workable Seam using Continuous Miner technology at Tawa-II underground coal mine, Pathakhera Area, WCL. Project Number: CNP/5010/2020-21

p) Advice for safe development of galleries from punch entries in Thick Seam Bottom (TSB) at Kondapuram Project, Manuguru Area, SCCL on the basis of information/data provided by the mine management. Project Number: CNP/5046/2020-21

q) Advice for safe depillaring and limit for strata control parameters in C-16 panel of No. 1 seam at KTK Incline Mine, Bhupalpalli Area on the basis of the field data supplied by the mine. Project Number: CNP/4166/2014-15

r) Scientific study for the design of a mechanised depillaring scheme for continuous miner package in CM-1 panel and surrounding areas of L1B seam at Vindhya Mine, Johila Area, SECL. Project Number: CNP/4459/2016-17

s) Advice for strata control and safe depillaring in Continuous Miner panels CM-2 and CM-3 of L1B seam at Vindhya Mine, SECL on the basis of field data supplied by the mine. Project Number: CNP/4590/2017-18

t) Strata control-based advice for safe extraction of coal from the CM panel A2 of No. 1 seam during its depillaring including widening and heightening of existing galleries at GDK-11 Incline mine, RG-I Area, SCCL on the basis of field data. Project Number: CNP/4614/2017-18

u) Scientific study to access the cavability of hanging overlying massive Deccan trap in the inbye goaves and its effect at Mathani UG, Pench Area, WCL and advice thereof. Project Number: CNP/4774/2018-19

v) Advice for preparation and formulation of Strata Control Monitoring Plan (SCAMP) of 7 depillaring and 10 developed panels in different mines of Satgram Area, ECL. Project Number: CNP/4852/2019-20

w) Advice for Preparation of Strata Control and Monitoring Plan (SCAMP) for one panel in each Bogra R-VI and Narayankuri R-VII seams of Amritnagar Colliery, Kunustoria Area, ECL. Project Number: CNP/4939/2019-20

19. List of Publications

A. **SCI Journals (Published-15)**

a) Singh R, **Kumar A**, Singh AK, Coggan J, Ram S. Rib/snook design in mechanised depillaring of rectangular/square pillars. International Journal of Rock Mechanics & Mining Sciences. 2016;84:119-129. DOI: 10.1016/j.ijrmms.2016.02.008

b) Ram S, Kumar D, Singh AK, **Kumar A**, Singh R. Field and numerical modelling studies for an efficient placement of roof bolts as breaker line support. International Journal of Rock Mechanics and Mining Sciences. 2017;93:152–162. DOI: 10.1016/j.ijrmms.2017.01.013

c) **Kumar A**, Kumar R, Singh AK, Ram S, Singh PK, Singh R. Numerical modelling-based pillar strength estimation for an increased height of extraction. Arabian Journal of Geosciences. 2017;10(18): 411. DOI: 10.1007/s12517-017-3179-6

d) **Kumar A**, Kumar D, Verma AK, Singh AK, Ram S and Kumar R. Influence of overlying roof strata on rib design in mechanised depillaring. Journal of The Geological Society of India. 2018; 91(3):341-347. DOI: 10.1007/s12594-018-0860-7

e) **Kumar A**, Waclawik P, Singh R, Ram S, Korbel J. Performance of a coal pillar at deeper cover: Field and simulation studies. International Journal of Rock Mechanics and Mining Sciences 2019;113:322-332. DOI: 10.1016/j.ijrmms.2018.10.006

f) **Kumar A**, Kumar D, Singh AK, Ram S, Kumar R, Gautam A, Singh R, Singh AK. Roof sagging limit in an early warning system for safe coal pillar extraction. International Journal of Rock Mechanics and Mining Sciences. 2019;123:104131. DOI: 10.1016/j.ijrmms.2019.104131

g) Singh AK, **Kumar A**, Kumar D, Singh R, Ram S, Kumar R, Singh AK. Coal pillar extraction under weak roof. Mining, Metallurgy & Exploration, 2020;37(5):1451-1459. DOI: 10.1007/s42461-020-00277-8

h) Sharma P, **Kumar A**, Shams N, Verma AK, Kumar D, Singh AK, Ram S. Parametric study to design competent irregular-shaped remnants in mechanised depillaring. Arabian Journal of Geosciences. 2021,14:247. DOI: 10.1007/s12517-021-06555-z

i) Singh AK, **Kumar A**, Kumar D, Singh R, Ram S, Kumar R, Singh AK. Field and simulation Studies for mechanised depillaring below weak and laminated geology in Indian coalmines. Journal of The Geological Society of India. 2021;97(4): 405-415. DOI: 10.1007/s12594-021-1698-y.

j) Ram S, Singh AK, Kumar R, **Kumar A**, Kumar N, Waclawik P, Gautam A, Raja M. Design of rock bolt-based goaf edge support for conventional depillaring with stowing. Arabian Journal of Geosciences, 2021;14(21):2164. DOI: 10.1007/s12517-021-08379-3

k) **Kumar A**, Kumar D, Singh AK, Ram S, Kumar R. Development of empirical model for strength estimation of irregular-shaped-heightened-rib/snook for mechanised depillaring. International Journal of Rock Mechanics and Mining Sciences, 2021;148:104969. DOI: 10.1016/j.ijrmms.2021.104969

l) Ram S, Kumar D, Singh AK, **Kumar A**, Singh R. Stability assessment of heightened rib/snook during extraction of a thick coal seam by continuous miner in single lift. Geomechanics and Geophysics for Geo-Energy and Geo-Resources. 2022;8:74. DOI: 10.1007/s40948-022-00378-2

m) Kumar R, Mishra AK, **Kumar A**, Singh AK, Ram S, Singh R. Importance of fracturing hard and massive overlying strata for complete extraction of thick coal seam-case studies. Journal of The Geological Society of India. 2022;98:203–210. DOI: 10.1007/s12594-022-1960-y

n) **Kumar A**, Singh AK, Kumar D, Ram S, Kumar R, Gorain S. Development of design norms for rib/snook during mechanised depillaring by continuous miner. Accepted for publication in International Journal of Rock Mechanics and Mining Sciences.

o) Ram S, Waclawik P, Nemcik J, Kukutsch R, **Kumar A**, Singh AK, Gong L. Study of pillar behaviour sandwiched between strong and weak layers at great depth. Accepted for publication in Journal of Rock Mechanics and Geotechnical Engineering.

B. **Non-SCI Journals (Published- 7)**

a) **Kumar A**, Singh AK, Kumar D, Ram S, Kumar R, Singh R, Singh AK. Caveability assessment of a hanging overlying massive deccan trap and its effect on underground working: a case study. Insights in Mining Science and Technology 2019;1(3):50-60. doi: 10.19080/IMST.2019.01.555561

b) Singh R, Ram S, Singh AK, **Kumar A**, Kumar R, Singh AK. Rock mechanics considerations for roof bolt-based breaker line design. Procedia Engineering. 2017;191 :551-559. doi: 10.1016/j.proeng.2017.05.217

c) Singh AK, Ram S, Singh R, **Kumar A**. Rib/snook competency in mechanised depillaring of the conventionally developed coal seams. Journal of Mines, Metals and Fuels. 2016; 64:414-423.

d) Singh AK, **Kumar A**, Ram S, Kumar R, Singh AK, Singh R. Instrumentation and monitoring for strata control in depillaring. News Journal of Mining Geological and Metallurgical Institute of India. 2022;47(4):39-51.

e) Ram S, **Kumar A**, Singh R, Singh AK, Thakur BK. Numerical simulation for design of goaf edge support during caving and stowing methods of strata control management. News Journal of Mining Geological and Metallurgical Institute of India. 2022;47(4):52-68.

f) **अशोक कुमार,** मुदस्सर राजा, अरुण कुमार सिंह, राकेश कुमार, सहेंद्र राम, अमित कुमार सिंह (2020) । सुरक्षित कोयला निकालने के लिए एक प्रारंभिक चेतावनी प्रणाली में स्तर/छत झुकने की सीमा का निर्धारण राजभाषा गृह पत्रिका सिंफर संवाद अंक 4 वर्ष 2020।

g) Singh AK, **Kumar A**, Ram S, Kumar D, Kumar R, Singh R, Raja M. Design of wide stall method of pillar extraction using continuous miner in a panel lying below Dagdowa village: A case study. Transactions of Mining Geological and Metallurgical Institute of India.

C. **Book Chapter**

a) **Kumar A,** Kumar D, Singh AK, Ram S, Kumar R, Singh AK. Developments made for mechanised extraction of locked-up coal pillars in Indian geomining conditions. IntechOpen. Mining Techniques - Past, Present and Future. Ed. Dr. A. K. Soni. 2020. doi: 10.5772/intechopen.93636

D. **International Conferences/Symposia/Colloquium**

a) **Kumar A**, Singh AK, Kumar D, Ram S, Kumar R, Singh AK. Success story of roof fall prediction during pillar extraction in a trialed panel of Tawa-II mine using continuous miner technology. In: Proceedings of Challenges in Safety and Environmental Management in Mines (CSEMM-2022), NIT Rourkela, 17th-19th June 2022.

b) Ram S, Singh AK, Waclawik P, **Kumar A**, Thakur BK. Stability study of natural supports during development and depillaring workings at different depths. In: Proceedings of Challenges in Safety and Environmental Management in Mines (CSEMM-2022), NIT Rourkela, 17th-19th June 2022.

c) **Kumar A**, Ram S, Singh AK, Kumar D, Kumar R, Singh AK. Ground control study on bulking factor and caving angle for Indian coalfields. In: Proceedings of 9th Asian Mining Congress & Exhibition, April 03-06, 2022, Biswa Bangla Convention Centre, Kolkata, India organized by The Mining Geological & Metallurgical Institute of India.

d) Rajashekhar K, Ram S, **Kumar A**, Waclawik P, Naresh M. Assessment of loading characteristics of resin grouted rock bolts under different confinement pressure through laboratory and numerical modelling studies. In: Proceedings of 9th Asian Mining Congress & Exhibition, April 03-06, 2022, Biswa Bangla Convention Centre, Kolkata, India organized by The Mining Geological & Metallurgical Institute of India.

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E. **National Conferences/Symposia/Colloquium**

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