

Brief Bio-data

1. Name: Dr. M. K. Singh

2. Date of Birth: 02.02.1964

3. Current Position and Address (Include Email ID and Contact Number)

Chief Scientist - CSIR-Central Institute of Mining and Fuel Research (CIMFR) Dhanbad.
E-mail I.D : mkscimfr@gmail.com; Phone: 7488528099.

4. Educational qualifications: (Graduation and above)

Sl. No.	Degree	Year of Passing	University/ Institute	Subject
1	B. Sc. Engg. (Mechanical)	1988	BIT, Sindri	Mechanical Engg.
2	M-Tech (Mineral)	1991	ISM, Dhanbad	Mineral Engg.
3	Ph.D. (Engg.)	2008	University of Reading, UK	Residual Life estimation of Steel Wire Rope used for hoisting in Indian Mines

5. Work experience:

Designation	Institute/company	From	To	Nature of Work
Scientist "B"	Central Mining Research Station (CMRS), presently CSIR-CIMFR, Dhanbad	10.5.1990	9.5.1995	
Scientist "C"	Central Mining Research Institute (CMRI) presently CSIR-CIMFR, Dhanbad	10.5.1995	9.5.2000	
Scientist "E1"	CSIR-CIMFR, Dhanbad (erstwhile Central Mining Research Institute, Dhanbad)	10.5.2000	9.5.2006	
Principal Scientist	CSIR-CIMFR, Dhanbad	10.5.2006	9.5.2011	
Sr. Principal Scientist	CSIR-CIMFR, Dhanbad	10.5.2011	9.5.2017	HOD & Professor, AcSIR
Head of Department	Material Testing Laboratory, CSIR-CIMFR, Dhanbad (presently Material Characterisation)	04.8.2011	Till date	
Chief Scientist	CSIR-Central Institute of Mining and Fuel Research (CIMFR) Dhanbad	10.5.2017	Till date	HOD & HORG
HORG / Co-ordinator	Machine Health Monitoring = (Material Testing Laboratory, Roof Support Laboratory, Metallurgical Laboratory, Workshop & AC)	03.5.2019	15.05.2019	
	Mechanics of Solid = (Material Testing Laboratory, Rock Mechanics Laboratory, Workshop & AC, Medical & Security.	16.5.2019	30.06.2020	
	Rock Mechanics & Material Characterization, Workshop & AC, Transport, Medical & Security.	01.7.2020	Till date	

6. Work Area(s)/ Specialization:

- Non-destructive evaluation of mining and allied engineering components.
- Life expediency of wire ropes/guide ropes used for hoisting in mines.

7. Major contributions: (Max. 100 words):

Mine Equipment Design, Quality Assessment of Mining and Allied Engineering Components, Failure Analysis of Wire Ropes and Mine Engineering Components and Wire Rope Research.

8. No. of Research Publications:

Papers in Journals:

- Singh M K, Mallick, M & Verma, M K (2021) Insight – Non-Destructive testing and condition monitoring: The British Institute of Non-Destructive Testing, Volume 63, No 6 June 2021, PP 357-361(5);
- Singh M K, Kumar B R, Pamnani M, Anand M & Shandilya S (2014) FEA Analysis of Crack Propagation of a Cage Shackle used in Mine Cage Suspension Gear Geomintech: The Indian Mineral Industry Journal, Iss-No 7 July- Sept / ENTMS 2014 PP 104-108;
- Tanweer Md., Singh M.K. & Kashyap S.K., “Prediction of setting load applied to hydraulic props in coal mines through fuzzy logic technique”, International Journal of Rock Mechanics & Mining Sciences (IJRMMS) (Communicated.)
- Singh U., Singh M. K. & Singh M. (2013) Analysis study on surface and sub surface imperfections through magnetic particle crack detection for nonlinear dynamic model of some mining components, Journal of Mechanical Engineering Research Vol. 4(5), pp. 185- 191, <http://www.academicjournals.org/JMER>,
- Singh U., Singh M. K. & Singh M. (2013) Failure analysis of bridle chain used for hoisting in mines, Journal of Chemical Engineering and Materials Science, DOI 10.5897/JCEMS13.o1.50, ISSN 2[4]-6605@2013 Academic Journal, vol. 4(3) pp. 38-45 (<http://www.academicjournals.org/JCEMS>);
- Singh M. K., Mahto A., Thakur R. N. & Sinha A. (2007) Failure Analysis of Wire Rope used for Hoisting in Mining – A Case Study, Journal of Failure Analysis and Prevention, USA. DOI 10.1007/s11668-007-9022-8 (Available Online www.spingerlink.com) & 11668. ISSN 1547-7029 (7) 77-152 (2007) Volume 7 Issue 2 April 2007 P87-91;
- Singh M K, Thakur R N & Mahto A (2007) An Insight Into Premature Failure Of A Few Safety Equipment – Their Causes And Remedies, The Indian Mining & Engineering Journal & MineTECH’07 Volume – 46 No. 09 P35-40.
- Singh M. K., Mahto A. & Thakur R. N. (2006 & 2007) Tools For Data Collection In Failure Analysis Of Wire Rope Used For Hoisting In Mines, published on in the Journal ‘R & D Quality Quest’, ISSN 0972 -5512, Vol. 8.2 (Aug 06) & 9.1 (Feb 07) p15-21;
- Singh M K & Basu A K (2002 & 2003) Relationship between Tensile Strength and Torsion of a Steel Wire Rope Under Different Operational States in an Indian Mine, Published in Wire Journal International, USA: 2003. 36 6 p. 62-67 and Presented at the Wire & Cable Technical Symposium (WCTS) to held at Wire Expo 2002 in Chicago, IL 8-13 June 2002;

- Basu A K, Singh M K & Ganguli K K (1999) An Analytical Study into Cases of Failure of Mining Safety Equipment, Journal of Mine, Metal and Fuel, vol XLVII 1999, special issue on MINE SAFETY, page 273-278;

In conference proceedings:

- Singh M.K. & Tanweer Md. (2016 & 2014), “Non-destructive assessment of vital haulage components with special reference to man riding system”, All India Seminar on Advances in Mine Transport System (AMTS), Jan. 20-21 2016, Dhanbad. & presented in All India Seminar on Mining – Recent Advances, Challenges And Scenario Beyond 2015 (MRACSB15-2014), during November 8-9, 2014 at NIT Rourkela.
- Tanweer Md., Singh M.K. & Kashyap S.K. (2016), “Application of fuzzy logic model for estimation of setting load in hydraulic props to enhance safety in underground coal mines”, 6th Asian Mining Congress, Feb. 23-27 2016, Kolkata . (Communicated.)
- Kashyap S.K. & Singh M.K. (2016), “Non-destructive investigation of shaft winding engines components of jitpur colliery”, All India Seminar on Advances in Mine Transport System (AMTS), Jan. 20-21 2016, Dhanbad. (Communicated.)
- Singh M. K. & Singh P. K. (2014) FAILURE ANALYSIS OF A SNAPPED TRACK ROPE OF 64MM DIA, FLC USED IN AN AERIAL ROPEWAY SYSTEM, accepted for publication in 6th Asian Mining Congress, Feb. 23-27 2016, Kolkata;
- Singh M. K., Roy L. B.& Kumar R. (2012) A Few Case Study with Special Reference to NDE of Mine Hoisting System in India, CD of National Seminar & Exhibition on Non-destructive Evaluation (NDE – 2012) organised by Indian Society for Non-destructive Testing, Delhi Chapter at Hotel Clarks Inn, Pacific Business IV, Sahibabad NCR Delhi on December 10-12, 2012;
- Singh M. K. & Singh U (2012) Testing of Materials - a special reference to Cage suspension gear used for hoisting in mines, Proceedings of All India Seminar on "Advances in Materials & Material Selection in Design" (AMMSD-2012) Organised by Mechanical Engineering Division, The Institution of Engineers (India) Kanpur Local center on August 24-25 2012
- Singh M. K, Maity S N and Mahto A. (2008) Application of Nanotechnology in Indian Mining – an emerging opportunity, Proceeding of a National Conference on “Emerging Trends in Mining and Allied Industries” (ETMAI - 2008) held on February 2 – 3, 2008 at N.I.T., Rourkela P604-617.
- Singh M. K. & Maity S. N. (2007) Appropriate Solution of Water Problem in the State of Jharkhand – A Panacea (Ramban) presented in a seminar entitled as “Appropriate Technology for Rural Development of Jharkhand” conducted by BIT Sindri on Feb. 11, 2007;
- Mahto A., Ritolia S. K. & Singh M. K., (2007) Testing and Examination of Steel Wire Ropes, Mine Cage and Haulage Gear Components, published in the Proceedings of National Workshop on ‘Test House, Testing Procedures and Facilities in Indian Coal and Non – coal Sector’ organised by DGMS on Jan 2007 at Kolkata, p G1-11.

- Singh M. K., Mahto A., Thakur R. N., Ritolia S. K. & Sinha A (2006) Failure Analysis of A Snapped Track Rope of 64mm Dia, FLC Used in an Aerial Ropeway System, Presented in the International Technical Conference organised by The Wire Association International (WAI), USA held at New Delhi on 5-7 October 2006
- Singh M. K., Mahto A., Thakur R. N. & Sinha A. (2006) Failure Analysis of Wire Rope used for Hoisting in Mining – A Detective Approach, Presented in Proceedings of the Conference on “Advances in Mechanical Engineering (AMIE – 2006) held at Jamia Milia Islamia, New Delhi on January 20-21, 2006, Page No. 122 – 132;
- Singh M. K., Mahto A. & Thakur R. N. (2006) Tools For Data Collection In Failure Analysis Of Wire Rope Used For Hoisting In Mines, published in the proceedings of an International conference proceedings on “Reliability and Safety Engineering” to be held on Dec. 18-20, 2006 organised by IIT Kharagpur, at Chennai, p 400-406.
- Singh M. K., Mahto A., Pathak V. N., & Bandopadhyay C. (2005) Failure of Wire Ropes used for hoisting in Indian Mines – A Few Case Studies, Presented in International Symposium on “Advances in Mining Technology and Management (27im -2005) held at IIT, Kharagpur on November 30- December-2,2005, Page No. 365 – 370;
- Basu, A K & Singh, M K and Pathak V N (2001) Role of NDE in Quality Evaluation of Mining Engineering Machinery/Components, Proceedings of National Seminar on ‘ Mine Ventilation, Safety and Environment’ from 29-30 Nov, 2001 held at CMRI, Dhanbad, P 343-352;
- Basu, A K & Singh, M K (2000) Selection of Wire Ropes for economic use; Proceedings of World conference MassMin 2000 held at Brisbane, Qld, Australia, 29 October – 2 November 2000: 903 – 910;
- Singh M. K., Basu A. K. & Choudhary S. P. (1999) Failure of Wire Ropes - A Few Case Studies, proceedings of the International conference on ‘Mining – Challenges of the 21st Century’ at New Delhi during Nov. 25-27, 1999. Trans. PP 681-690;
- Pathak V. N., Singh M. K. & Choudhary S. P. (1999) Quality Evaluation of Mining & Engineering components by Non-destructive Evaluation, proceedings of the International conference on ‘Mining – Challenges of the 21st Century’ at New Delhi during Nov. 25-27, 1999. Trans. PP 719-724;
- Basu, A K & Singh, M K, Mandal N. & Singh T. N. (1999) The Impact of the Surface Quality Factor in the Performance Behaviour of Steel Wire Ropes for the Mines, Conference proceedings of The Wire association International, Inc. Wire & Cable Technical Symposium (WCTS), 69th Annual Convention, Atlanta, Georgia, USA, May 1999, Trans. PP211- 216;
- Basu, A K & Singh, M K (1999) Waste problems in some Metallurgical Industries – Their Abatement and Control, proceedings of the International conference on ‘Mining – Challenges of the 21st Century’ at New Delhi during Nov. 25-27, 1999. Trans. PP 673-680.
- Pathak V. N., Singh M. K., Singh R. & Kashyap S. K. & Choudhary S. P. (1995) Routine Condition Monitoring of Mining Engineering component by NDE, Presented in RCM’95 on Sept. 26-27, 1995 at CMRI Dhanbad;
- Singh M.K., Misra D.D.& Abbas M. (1993) Computer aided simulation of Moonidih Coal Crushing Circuit, presented in ICCAMI 93 held at Madras;
- Misra D.D., Singh M.K., Kashyap S.K. (1993) Comparative evaluation of Rotary breaker and Deshaling jig, presented in ICCAMI 93 held at Madras;

- Pathak V.N., Singh R, Singh M.K. and Choudhary S.P. “Application of Non-destructive Evaluation in Mining Industry” organised by I.S.N.T., Bombay Chapter at BARC, Bombay
- Kashyap S. K., Singh M. K., Choudhary S. P., Mahto A & Mehta K. D. “Non-destructive Assessment of defect size through fracture Mechanics” organised by CMRI Dhanbad.

Invited lectures delivered:

- Invited for delivering lecture on “NDT Theory” before foreign delegates during short course programme on “Maintenance of Mining Equipment during 09.09.2013 – 20.09.2013” by the Director of ISM, Dhanbad;
- Being the Honorary Secretary of IEI, Dhanbad Local Center, the following organising secretary’s addresses were delivered on the relevant topics during the period 2010-2012:
- World Water Day 2011 - A Seminar on “Water for Cities: Responding to the Urban Challenges” on May 14, 2011 at HRD Building, BCCL, Dhanbad;
- World Telecommunication and information Day 2011 – Observed on May 17, 2011 on the theme “ Better Life in Rural Communities With ICTs” at CIMFR, Dhanbad;
- World Environment Day 2011 – Observed on June 5, 2011 on the theme “Forests: Nature at your Service” at CIMFR;
- International Year of Chemistry 2011 – Observed on September 10, 2011 at CIMFR Digwadih campus along with a seminar on “Chemistry for Sustainable Development of Coal Based” Technology;
- 44th Engineers’ day 2011 - Observed on September 15, 2011 at CIMFR, Dhanbad along with a seminar on “Engineering Preparedness for Disaster Mitigation”;
- World Habitat Day 2011 – Observed on October 17, 2011 at ISM, Dhanbad on the theme “Cities and Climate Change”.
- A Seminar 2012 - Organised jointly with IETE students Chapter, BIT Sindri on the topic “Convergence of Engineering Education through Information & Communication Technology” on February 20, 2012 at BIT, Sindri
- World Water Day 2012 - A lecture on “Water and Food Security” on May 14, 2011 at Camp office, IEI, DLC, Dhanbad;
- World Telecommunication and information Day 2012 – Observed on May 17, 2012 on the theme “ Women and Girls in ICT” at ISM, Dhanbad;
- World Environment Day 2012 – Observed on June 5, 2012 on the theme “Green Economy: Does it Include you” at ACC, Sindri
- 44th Engineers’ day 2012 - Observed on September 15, 2012 at JRD Tata Auditorium, Dhanbad along with a seminar on “Appropriate Climate-Responsive Technology for Inclusive Growth and Sustainable Development”;
- World Habitat Day 2012 – Observed on October 1, 2012 at BIT, Sindri, Dhanbad on the theme “Changing Cities and Building Opportunities”;

List of best 05 publications:

- Singh M K, Mallick, M & Verma, M K (2021) Insight – Non-Destructive testing and condition monitoring: The British Institute of Non-Destructive Testing, Volume 63, No 6 June 2021, PP 357-361(5);
- Singh M K, Kumar B R, Pamnani M, Anand M & and Shandilya S (2014) FEA Analysis of Crack Propagation of a Cage Shackle used in Mine Cage Suspension Gear Geomintech: The Indian Mineral Industry Journal, Iss-No 7 July- Sept / ENTMS 2014 PP 104-108;
- Singh U., Singh M. K. & Singh M. (2013) Failure analysis of bridle chain used for hoisting in mines, Journal of Chemical Engineering and Materials Science, DOI 10.5897/JCEMS13.o1.50, ISSN 2[4]-6605@2013 Academic Journal,vol. 4(3) pp. 38-45 (<http://www.academicjournals.org/JCEMS>);
- Singh M. K., Mahto A., Thakur R. N. & Sinha A. (2007) Failure Analysis of Wire Rope used for Hoisting in Mining – A Case Study, Journal of Failure Analysis and Prevention, USA. DOI 10.1007/s11668-007-9022-8 (Available Online www.springerlink.com) & 11668. ISSN 1547-7029 (7) 77-152 (2007) Volume 7 Issue 2 April 2007 P87-91;
- Singh M K & Basu A K (2002 & 2003) Relationship between Tensile Strength and Torsion of a Steel Wire Rope Under Different Operational States in an Indian Mine, Published in Wire Journal International, USA: 2003. 36 6 p. 62-67 and Presented at the Wire & Cable Technical Symposium (WCTS to held at Wire Expo 2002 in Chicago, IL 8-13 June 2002;

Books / Chapters authorized / edited:

- Proceedings of an All India seminar on “Advances in Mine Transport system – 2016” (AMTS 2016) organised by The Institution of Engineers (Indai), Dhanbad Local Center in association with DGMS, Dhanbad on January 20-21, 2016, at community hall, BCCL, Dhanbad.

9. List of 5 Major Contract R&D Projects:

- i) Quality evaluation of winding / haulage rope through destructive testing of dfferents mines (Tata Steel Limited, IMFA, UCIL, HCL, SAIL etc.);
- ii) Development of National facility for testing of mining equipment and wire rope upto 1000 Ton capacity;
- iii) Study and advice on Mechanical Integrity of vital components of winding system of Indian mines and 14 man riding system of SCCL;
- iv) Projects related to quality assurance and monitoring for third party of coal at loading sites of Bilaspur & Nagpur Zone.
- v) Study the Physico-mechanical Properties Hydrabolt of M/s Suraj Mine Tech, 157, Phase-II, Industrial Area, Chandigarh - 160 002 (INDIA)

10. (a) Name of Patents/Copyrights applied /granted/commercialized:

Title	Inventors	Country	Publication Date	Filing Date	Grant Date	Patent No.
Mobile size separator for coal/run-of-mines	Maity S N, Singh M K & Sinha A	India (Republic of)	19-Sep-2006	02-Sep-2006	26-Feb-2007	0392DEL2007
Mobile disaster vehicle useful for emergency evacuation from pothole/pit particularly in mines	Maity S N, Singh M K & Mahto A	India (Republic of)	22-Nov-2006	07-Nov-2006		0266NF2006
A novel device useful for locking flanges of pipe joint	Maity S N, Singh M K & Mahto A	India (Republic of)	22-Nov-2006	07-Nov-2006	21-Mar-2007	0611DEL2007
A novel device for desalination of sea water by using natural forces	Maity S N & Singh M K	India (Republic of)	22-Nov-2006	07-Nov-2006	28-Mar-2007	0672DEL2007
An improved light composite tubical support useful for quick setting against tunnel roof	Maity S N & Singh M K	India (Republic of)	08-Jan-2007	29-Dec-2006	03-May-2007	0958DEL2007
Novel test rig useful for evaluation of cement / resin capsule & roof bolt on the surface simulating the underground mine condition	Maity S N, Singh M K & Sinha A	India (Republic of)	08-Jan-2007	29-Dec-2006	13-Nov-2007	2381DEL2007

A novel prestressed rail sleeper particularly useful for underground haulage track	Maity S N & Singh M K	India (Republic of)	21-Feb-2007	02-Feb-2007	03-May-2007	0956DEL2007
A light and detachable canopy for protecting the miners in the immediate front face of a tunnel drivage (0110nf2007)	Maity S N & Singh M K	India (Republic of)	19-Feb-2007	02-Feb-2007	21-Aug-2007	1627DEL2007
Road dust collecting and briquetting system for coal mines	Chaulya S K & Singh M K	India (Republic of)		10-Aug-2010	02-Nov-2010	2619DEL2010

(b) Technologies/Products /knowhow/Services developed:

Technologies developed, Licensed and/or commercialized: Technology for Road dust collecting and briquetting system for coal mines has been transferred to TATA Motor for commercialization.

11. Honors/Awards/Recognitions/Fellowships/Scholarships/Professional Memberships received:

- Chief Guest in “Tech Udbhav 2015” celebrated by IETE Students chapter at BIT, Sindri.
- Honored as Chairman, The Institution of Engineers, Dhanbad Local Center (2014)
- Appointed Reviewer of Open Journal of Safety Science and Technology (OJSST) on April, 2014.
- Honoured as Editor-in-Chief of International Journal of Materials Engineering, USA <http://journal.sapub.org/ijme> on 1.1.2014 for one year;
- Honored as Editor-in-Chief of Journal of Safety Engineering, USA <http://journal.sapub.org/safety> on 16.5.2013 for two years;
- Appointed Guest Editor of International Journal of Mining Engineering and Mineral Processing on 10.4.2013.
- Honoured as Reviewer of Journal of Safety Engineering, USA <http://journal.sapub.org/safety> on 1.11.2012;
- Appointed Think Tank Member of IETP (Institutional Education Tuning Program) for year 2012-13.
- Appointed AICTE Adviser (All India Council of Technical Education) for year 2012-13;

- Appointed Reviewer of International Journal of Mechanics and Applications, USA <http://journal.sapub.org/mechanics> M/s Scientific Academic Publisher, USA on 1.11.2012;
- Honoured as Reviewer of International Journal of Materials Engineering, USA <http://journal.sapub.org/ijme> by M/s Scientific Academic Publisher, USA on 31.10.2012;
- Honoured as Reviewer of International Journal of Mechanical Engineering and Automation, <http://journal.sapub.org/imea> by M/s Scientific Academic Publisher, USA on 31.10.2012;
- Theme of a paper recommended to mining industry, 2008 - Paper presented in a National Conference on “Emerging Trends in Mining and Allied Industries” (ETMAI) organised by NIT Rourkela was included in the list of recommendation that represent the major outcomes of deliberations stated as “Innovation and introduction of Nano-technology in the mining field should be emphasized and encouraged in coming future”.
- Four Award for filing Patent, 2008 – This award was given by Director, Central Institute of Mining Research for filing a patent;
- Two Award for filing Patent, 2007 – This award was given by Director, Central Mining Research Institute for filing a patent;
- Guest of Honour, 2007 - by the president of “Triveni 07, BIT Sindri” and performed the duty as judge for a seminar entitled as “Appropriate Technology for Rural Development of Jharkhand on Feb. 11, 2007;
- INSA Award, 2000 - INSA awarded a sum of Rs. 10,000 for presenting a paper abroad;

Fellowships / Scholarships:

- CSC Grant Travel, 2000 - Commonwealth Science awarded a sum of GBP 1000 for presenting a paper abroad; 9. No. of Research Publications: 3
- RTEF Scholarship, 2000 - A sum of GBP 30,000 as Scholarship from University of Reading, UK for Ph.D. study;
- Graduate Aptitude Test Examination, 1988 - Based on the recognition of the examination a scholarship was given by the Ministry of Human Resource Development, Government of India for M. Tech. study;
- National Merit Scholarship, 1984 - This award was given under the National Scholarships Scheme of the Ministry of Human Resource Development, Government of India on the basis of the B. Sc. Engineering result;
- National Merit Scholarship, 1982 - This award was given under the National Scholarships Scheme of the Ministry of Human Resource Development, Government of India on the basis of the Higher Secondary Examination result;
- National Merit Scholarship, 1976 - This award was given under the National Scholarships Scheme of the Ministry of Human Resource Development, Government of India on the basis of competition held in district to support matriculation study;

Details of Professional memberships:

1	Fellow	Life	The Institution of Engineers (India)
2	Executive member	2008-2010	The Institution of Engineers (India) Dhanbad Local Center
3	Hony. Secretary	2010-2012	
4	Executive member	2012-2014	
5	Chairman	2014-2016	
6	Member	Life	Indian Society of Mechanical Engineers, ISME (I)

7	Member	Life	ISAMP AE, ISM Dhanbad
8	Executive member	Onward	Indian Society for Advancement of Material and Process (ISAMP AE) ISM Dhanbad
9	Principal Executive Member	2012 (Onward)	Wire rope products section committee, MED 10 (Bureau of Indian Standards)
10	Think Tank Member	2012-13	IETP (Institutional Education Tuning Program)
11	Advisor	2012-13	AICTE
12	Member Life	(2013)	Ultrasonics Society of India
13	Member		Standard formation committee constituted by DGMS for formulation of standard of cage suspension gear used in Koepe Winder
14	Life member	Life	“Ultrasonic Society of India”
15	Member of Editorial Board	11.02.2014	Journal of Material Science and Chemical Engineering (MSCE)

12. Societal Contributions:

- Contribution as a co-ordinator to the newly constructed CIMFR dispensary for better facility to CIMFR staff member & arranging a COVID centre at CIMFR campus for better medical facility to COVID infected staff members during COVID.
- Contribution as Guide to Vocational Training of B-Tech students of reputed Engineering colleges of country;
- Contribution as Project Guide to AMIE students of The Institution of Engineers (India).