

Bio-Data



- 1. Full Name** : Dr. G. M. Prasad
- 2. Date of birth** : 21st September 1962
- 3. Current Position & Address** : Chief Scientist
Mine Mechanization, Automation & Technology Development
Research Group
Central Institute of Mining & Fuel Research
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4. Educational Qualifications:

Degree	Year of Passing	University/ Institute	Subject	Div./Class/Grade/Scholarship
Ph. D.	1997	IIT (SM), Dhanbad	Applied Physics	-
M.Sc.	1985	Ranchi University, Ranchi	Physics with Electronics Spl.	1 st Class
B.Sc.	1982	Ranchi University, Ranchi	Phy.(Hons), Chem., Math.	1 st Class

5. Work Experience:

Sl.No.	Designation	From	To	Instt./Comp.	Nature of work
1.	Lecturer in Physics	17-08-1985	05-05-1987	Mahuda Mahavidyalaya, Mahuda, Dhanbad	Teaching UG students
2.	Jr. Research Fellow	06-05-1987	05-05-1989	CSIR-CIMFR Dhanbad	R&D Work
3.	Sr. Research Fellow	06-05-1989	29-10-1989	CSIR-CIMFR Dhanbad	R&D Work
4.	Junior Scientist	30-10-1989	29-10-1994	CSIR-CIMFR Dhanbad	R&D Work
5.	Scientist	30-10-1994	29-10-1999	CSIR-CIMFR Dhanbad	R&D Work
6.	Senior Scientist	30-10-1999	29-10-2004	CSIR-CIMFR Dhanbad	R&D Work
7.	Principal Scientist	30-10-2004	29-10-2009	CSIR-CIMFR Dhanbad	R&D Work
8.	Senior Principal Scientist	30-10-2009	29-10-2017	CSIR-CIMFR Dhanbad	R&D Work
9.	Chief Scientist	30-10-2017	continuing	CSIR-CIMFR Dhanbad	R&D Work

- 6. Area of specialization:** Electronics, studies of electronic properties of semiconducting materials, fiber optic Communication, development of instrumentation for mine safety and testing & certification of electronics & IT products related to safety.
- 7. Honors/Awards received:** Received Merit Certificate for 'CSIR Technology Award 2018' at Vigyan Bhawan, New Delhi, for implementing our own developed technology 'Mine transport Surveillance System' in Indian Mines.

8. Fellowships/Scholarships: NIL

9. No. of Research Publications:	(a) International Journals	: 16
	(b) National Journals	: 11
	(c) Seminars/Symposia	: 36

List of few relevant publications:

- i. Kumar, V., **Prasad, G.M.**, Nigam, U.S., Srivastava, S.C., Bhatnagar, R., Kushwaha, J.C. and Prasad, J. (1989), "Optical Fiber Communication for Mines", Research and Industry, New Delhi, 34:68-71.
- ii. Srivastava, S.C., Kumar, V. and **Prasad, G.M.** (1989), "Optical Fiber Sensors and Transmission of Data using Optical Fibers for Environmental monitoring in Underground Coal Mines.", Research and Industry, New Delhi, 34:107-110.
- iii. Kumar, V. and **Prasad, G.M.** (1989), "Fiber Optic Sensors for Mines", Mining Technology, UK, 71(824):187-188.
- iv. Kumar, V. and **Prasad, G.M.** (1989), "Electronic properties of Ionic Rocksalt Crystals", Journal of Physics and Chemistry of Solids, USA, 50(9):899-901.
- v. Kumar, V. and **Prasad, G.M.** (1989), "Electronic properties of Am Bn Complex Crystals", Phys. Status Solidi, F.R. Germany, 155:209-213.
- vi. Kumar, V. and **Prasad, G.M.**, Nigam, U.S. and Chandra, D. (1991), "Optical logic NOT, AND, NAND, OR, and NOR elements", Journal of Optical Communications, F.R. Germany, 12:33-35.
- vii. Kumar, V., **Prasad, G.M.** and Chandra, D. (1992), "Microhardness of AN-1 BN+1 C2 8-N Chalcopyrite Semiconductors", Phys. Status Solidi, F.R. Germany, 170:77-80.
- viii. Kumar, V., **Prasad, G.M.** and Chandra, D. (1994), "Electronic Polarizability of ABC₂ Chalcopyrite Semiconductors", Indian Journal of Pure and Applied Physics, 32:272-274.
- ix. Kumar, V., **Prasad, G.M.** and Chandra, D. (1994), "Bulk Modulus of Ternary Chalcopyrite Semiconductors", Phys. Status Solidi, F.R. Germany, 186:K45-K48.
- x. Kumar, V., **Prasad, G.M.**, Chetal, A.R. and Chandra, D. (1996), "Microhardness and Bulk Modulus of Binary Tetrahedral Semiconductors", Journal of Physics and Chemistry of Solids, USA, 57(4):503-506.
- xi. Kumar, V., **Prasad, G.M.**, Chetal, A.R. and Chandra, D. (1996), "Electronic Polarizability, Bulk Modulus and Lattice Energy of Alkali Halides Crystals", Cryst. Res. Technol., F.R. Germany, 31(2):K16-K19.
- xii. Kumar, V., **Prasad, G.M.** and Chandra, D. (1996), "Microhardness- Plasmon Energy- Bulk Modulus Relationship in Ternary Chalcopyrite Semiconductors", Cryst. Res. Technol., F.R. Germany, 31(4):501-504.
- xiii. Kumar, V., **Prasad, G.M.** and Chandra, D. (1997), "Lattice Energy and Electronic Polarizability of Binary Tetrahedral Semiconductors", Journal of Physics and Chemistry of Solids, USA, 58 (3):463-465.
- xiv. M. Abbas and **Prasad, G.M.** (1997), "Graphical user Interface Technology in Mining", The Indian Mining & Engineering Journal, 36(8):12-16.
- xv. **Prasad, G.M.** and Lolarak, R. (1998), "Internet Ek Avlokan", Deskal Sampada, pp. 54-55.

- xvi. Dutta, S., Mishra, P.K., **Prasad, G.M.**, Shukla S. and Chaulya, S.K. (2012), “Internet Protocols: IPv4 vis-à-vis IPv6”, *Asian Journal of Information Technology*, 11(3):100-107.
- xvii. Verma, R.K. Pd., Duta, S., Chaulya, S.K., Singh, A.K. and **Prasad, G.M.** (2013) “Cloud Computing: A New Era in IT Industry”, *International Journal of Computer Technology and Electronics Engineering (IJCTEE)*, ISSN 2249-6343, Volume 3, Issue 2, April 2013.
- xviii. Mandal, R., Kumar, A., Kingson, T. M. G., Verma, RK. Pd., Kumar, A., Dutta, S., Chaulya, S.K. and **Prasad, G.M.**(2013), “Application of Programmable Logic Controller for Gases Monitoring in Underground Coal Mines”, *IRACST – Engineering Science and Technology: An International Journal (ESTIJ)*, ISSN: 2250-3498, Vol.3, No. 3, June 2013.
- xix. Kumar, A., Kingson, T.M.G., Verma, R.K. Pd., Kumar, A., Mandal, R., Dutta, S., Chaulya, S.K., and **Prasad, G.M.**(2013), “Application of Gas Monitoring Sensors in Underground Coal Mines and Hazardous Areas”, *International Journal of Computer Technology and Electronics Engineering (IJCTEE)*, ISSN 2249-6343, Volume 3, Issue 3, June 2013.
- xx. Kumar, A. , Kingson, T.M.G., Chaulya, S.K. and **Prasad, G.M.**(2013),“Gas sensors for underground coal mines: A review”, *Minetech*, Volume 34, No. 3, 2013, p.3-25.
- xxi. Shukla,S.K., Chaulya,S.K., Mondal,R., Kumar,B., Ranjan,P., Mishra,P.K., **Prasad,G.M.**(2014), Dutta,S., Priya,V., Rath,S., Buragohain,K. and Sarmah,P.C.,”Real-Time Monitoring System for Landslide Prediction using Wireless Sensor Networks.”*International Journal of Modern Communication Technologies & Research (IJMCTR)*, 2, No. 12, 2014, p. 14-19.
- xxii. Kumar ,V., Singh ,J.K. and **Prasad G.M.**(2015),”Elastic properties of elemental, binary and ternary semiconductor materials.”*Indian Journal of Pure & Applied Physics*, 53, July, 2015, p. 429-435.
- xxiii. Chaulya,S.K., **Prasad,G.M.**, Ansari,S., Kumar,R. and Kumar,D. (2016),”Coal production and transportation monitoring system for opencast mines.”*Journal of Mines, Metals & Fuels*, 64, No.9, Sept. 2016, p. 437-445.
- xxiv. Mondal R., Kumar R., Ansari S., Kumar D., Chaulya S. K., **Prasad G.M.**, Singh A.K. and Maity T. (2020), “Underground coal gasification techniques for different geo-mining conditions.” *International Journal of Oil, Gas and Coal Technology*, (Inderscience Publishers), 23, No. 2, Jan. 2020, p. 199-217.

Papers presented in Conferences / Seminars

- i. Kumar,V., **Prasad, G.M.**, Nigam, U.S. and Srivastava, S.C. (1989), “Fiber Optic Temperature Sensor for Mines”, *Proceedings of International Conference on Coating and Sensors, Penn. State Univ., USA*.
- ii. Abbas, M. and **Prasad, G.M.** (1993), “Mining Communication Systems”, *Proceedings of 62nd Annual session, Nat. Acad. Sci., Udaipur, Rajasthan*.
- iii. **Prasad, G.M.**, Kumar, V., Jaiswal, R.J. and Abbas, M. (1994), “Amplitude and Phase modulation Techniques for Fiber Optic Sensors”, *Proceedings of 81st. Indian Science Congress Association, Rajasthan University, Jaipur*.
- iv. Abbas, M., Lolarak, R., Basak, D. and **Prasad, G.M.** (1994), “Computer Hardware Maintenance: Options, Problems and Experiences in CMRS”, *Proceedings of Workshop on Computer Hardware Maintenance, ISM, Dhanbad*.

- v. Srivastava, S.C, Abbas, M., **Prasad, G.M.** and Lolarak, R. (1994), “Jharia Koyla Kshetra Me Khanan Sanchar Ki Paddhatia : Ek Avlokan”, *Proceedings of Seminar in Hindi on ‘Jharia Coalfield Centenary Celebration (1894-1994)’*, CMRI, Dhanbad.
- vi. Singh, T.N., Abbas, M., Lolarak, R., **Prasad, G.M.** and Basak, D. (1994), “Jharia Koyla Kshetra Ke Paripechya Me Computer Ka Upyog : Samasya Ewam Samadhan”, *Proceedings of Seminar in Hindi on ‘Jharia Coalfield Centenary Celebration (1894-1994)’*, CMRI, Dhanbad.
- vii. Abbas, M., Lolarak, R., and **Prasad, G.M.** (1995), “Past, Present and Likely Future of Information Technology in CMRI, Dhanbad”, *Proceedings of Seminar on ‘Scenario of IT in Jharia Coalfields’*, CMRI, Dhanbad.
- viii. Abbas, M., Lolarak, R., Basak, D. and **Prasad, G.M.** (1996), “General Software Application Areas and Packages for Environmental Studies”, *Presented in the Course on ‘Computer Application on Industrial Pollution Control’ (Training under Industrial component of World Bank aided Industrial Pollution Control Project)*, CMRI, Dhanbad.
- ix. Abbas, M., **Prasad, G.M.** and Lolarak, R. (1996), “Present and Likely Future of Information Technology in CMRI, Dhanbad”, *Proceedings of Seminar on ‘Computer- Today & Tomorrow’, S.S.L.N.T. Mahila Mahavidyalaya, Dhanbad organized by CMC India Limited, Dhanbad.*
- x. **Prasad, G.M.** (1998), “Graphical user Interface Technology and its application in Mining.” “National Seminar in Applied Physics”, *Proceedings of Deptt of Applied Physics, ISM, Dhanbad.*
- xi. **Prasad, G.M.** (1998), “Application of Graphical user Interface Technology in Mining.”, *Proceedings of Seminar on “Recent trends & advances in Information Technology (Tech-Expo ’98)”*, CSI, Dhanbad Chapter, held at CMRI, Dhanbad.
- xii. **Prasad, G.M.**, Achari, J. and Kumar, V. (2001), “Application of Computer Graphics in Mining Industry” *Proceedings of Indian Conference on Computer Application in Mining Industry (ICCAMI-2001)*, held at New Delhi, organized by CMRI, Dhanbad.
- xiii. **Prasad, G.M.** and Kumar, V. (2008), “Linux: A potential operating system for the future” *Proceedings of Indian Conference on Computer Application in Mining Industry (ICCAMI- 2003)*, held at RRL, Bhubaneswar, organized by RRL, Bhubaneswar.
- xiv. **Prasad, G.M.** and Kumar, V. (2008), “Basics of intrinsic safety and its application in hazardous area”, *Proceedings of National Seminar on Frontiers of Electronics, Communications, Instrumentation & Information Technology (FECIIT-2008)*, organized by Deptt. of Electronics & Instrumentation, ISM, Dhanbad.
- xv. **Prasad, G.M.** and Kumar, V. (2009), “Intrinsic safety : Principle and Practical Installation.”, *Proceedings of Ist International Seminar and Exhibition for Explosive Atmospheres (DTEX-2009)*, organized by Flame & Explosion Laboratory, CIMFR, Dhanbad.
- xvi. Kumar, V., Singh, J.K., **Prasad, G.M.** and Jha, V. (2011), “Bulk Modulus of AI BIII C2VI and AII BIV C2V chalcopyrite semiconductors” *Proceedings of National Seminar on ‘Nanomaterials and their applications (NANOMAT-2011)’*, organized by Deptt of Applied Physics, ISM, Dhanbad.
- xvii. Mishra, P.K., Shukla, S.K., Dutta, S., Chaulya, S.K. and **Prasad, G.M.** (2011), “Detection of Landslide using Wireless Sensor Networks.”, *Proceedings of XXX URSI General Assembly and Scientific Symposium of International Union of Radio Science, Istanbul, Turkey.*

- xviii. Kumar, V., Singh, J.K., **Prasad, G.M.**, and Sinha, A. (2011), “Bulk Modulus and Micro-hardness of Chalcopyrite Semiconductors.”, *Proceedings of National Seminar on Frontiers of Electronics, Communications, Instrumentation & Information Technology (FECIIT-2011)*, organized by Deptt. of Electronics & Instrumentation, ISM, Dhanbad.
- xix. Mishra, P.K., Askari, S.A., Sharma, K.S., Singh, P K., **Prasad, G.M.** and Kumar, V. (2011), “Structural Health Monitoring System Using RFID Sensor Network ”, *Proceedings of National Seminar on Frontiers of Electronics, Communications, Instrumentation & Information Technology (FECIIT-2011)*, organized by Deptt. of Electronics & Instrumentation ISM, Dhanbad.
- xx. Shukla, S.K., Dutta, S., Chaulya, S.K., Mishra, P.K., **Prasad, G.M.** (2011), “Application of MEMS Sensors for Landslide Monitoring and Detection”, *Proceedings of National Seminar on Frontiers of Electronics, Communications, Instrumentation & Information Technology (FECIIT-2011)*, organized by Deptt. of Electronics & Instrumentation, ISM, Dhanbad.
- xxi. Kumar,A.,Chaulya,S.K. and **Prasad,G.M.**(2013), “Principles and application of gas sensors for underground coal mines.”*Proceedings of Workshop on “Importance of Telemonitoring Systems and Local Methane Detectors in Gassy Mines”*, organised by Directorate General of Mines Safety, Dhanbad, Mar.,4, 2013.
- xxii. Kumar ,B., Kumar ,A., Chaulya,S.K. and **Prasad,G.M.**(2013), “Infrared based local methane detector for underground coal mines.” *Proceedings of Workshop on “Importance of Telemonitoring Systems and Local Methane Detectors in Gassy Mines”*, organised by Directorate General of Mines Safety, Dhanbad, Mar.,4, 2013.
- xxiii. Kingson,T.M.G, Mandal,R., Chaulya,S.K. and **Prasad,G.M.**(2014), “Solar based LED Lighting for Mining and Industrial Application.” *Proceedings of National Seminar on “Sustainable Development in Mineral & Earth Resources (SDMinER 2014)”* organised by The Indian Mining & Engineering Journal at New Delhi, Jun., 21-22, 2014.

10. Number of books authored: Coauthored one book

Title of the book: “*Sensing and Monitoring Technologies for mines and hazardous areas.*”

Authors: S.K. Chaulya & **G.M. Prasad.**

Publisher: Elsevier. NY, USA, 2016.

11. (a) No. of Patents granted/applied for: 04

(b) Technologies developed, Licensed and/or commercialized: 01

12. Foreign visits: NIL

13. Details of Professional memberships:

Sl.No.	Name of Society/Institution	Class of Membership
1.	Indian Science Congress Association (ISCA)	Life Member
2.	The Institution of Electronics and Telecommunication Engineers (IETE)	Fellow (Life Member)
3.	The Mining, Geological and Metallurgical Institute of India (MGMI)	Life Member

14. Major contributions (Max. 150 words):

(a) The developed technology entitled “Road dust collecting and briquetting system” has been transferred to M/s Tata Motors Limited, Mumbai for commercialization of the system by my continuous effort.

(b) Development of landslide monitoring for north eastern regions of India using WSN under MeitY funded GAP project, has been completed successfully. The system is useful in saving valuable life of the people residing near the landslide prone area. The system also reduces the risk of accidents due to landslide and helps the local authority to take immediate precautionary safety measures and start rescue operations immediately after occurrence of landslide. The innovated technology has been patented.

(c) The local methane detector (LMD) system has been developed under the project entitled “Development of feasibility assessment model for adaptation of underground coal gasification technology in the North-East region of India” under MeitY funded GAP project, which provides audio-visual alarm and automatic power cut-off of the underground mine, when concentration of methane gas exceeds its permissible limit in the mine.

(d) The GAP project funded by MeitY has been undertaken on “Development of Mining transport surveillance system for controlling illegal mining and coal transportation for North-East coalfields, Assam.” The system has been installed at Tirap OCP of North-East Coalfields, Assam. The innovated technology has been patented and agreement has been made with M/s Dadhwal Weighing Instrument, Dhanbad for commercialization of the system.

(e) A Safety Testing Laboratory has been established at the Institute by my continuous effort, which is now NABL accredited as well as BIS recognized lab in India, in accordance with the “Electronics and Information Technology Goods (Compulsory Registration) Order, 2012 of MeitY. The lab performs safety related testing and certification of electronics & IT products, which will cater the need of all stakeholders in the eastern region of India covering domestic industries, exporters, importers, entrepreneur, small and medium enterprises and electronic & IT products manufacturers & Standards setting bodies.

15. Technologies and products /Services:

- (i) Developed: 02
- (ii) Licensed: 01
- (iii) Commercialized: 01

16. Designs and Prototype Developed: 01

17. Honours and awards won for technological contributions or sociological impact of R&D:

- Merit Certificate for “CSIR Technology Award-2018”.
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