Curriculum vitae

M. L. Sharma

Professor, Department of Earthquake Engineering, IIT Roorkee, Roorkee – 247667, India



Personal Data

Name: M. L. Sharma

Born: Dec. 09, 1962, Uttar Pradesh, India

Nationality: Indian

Address: Department of Earthquake Engineering, IIT Roorkee,

Roorkee - 247667, India

Professional affiliation: Professor, Department of Earthquake Engineering

Indian Institute of Technology Roorkee, Roorkee, India

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Education

1992	Ph.D., in Earthquake Engineering, University of Roorkee, India
1985	M. Tech., in Applied Geophysics, , University of Roorkee, India
1982	Bachelor of Science from Meerut University, India

Employment Record

Since 01 Jan, 2018	Professor HAG, Department of Earthquake Engineering, Indian Institute of Technology Roorkee, India
08 May, 2008-31 Dec, 2017	Professor, Department of Earthquake Engineering, Indian Institute of Technology Roorkee, India
28 Sep, 2004 – 8 May, 2008	Associate Professor, Department of Earthquake Engineering, Indian Institute of Technology Roorkee, India
09 April, 1996 – 28 Sep, 2004	Assistant Professor, Department of Earthquake Engineering, Indian Institute of Technology Roorkee, India
26 June, 1986 – 09 April, 1996	Lecturer, Department of Earthquake Engineering, Indian Institute of Technology Roorkee, India
27 Dec, 1985-26 June, 1986	Scientist B, Department of Earthquake Engineering – University of Roorkee, India

Research Interests

Engineering Seismology, Seismic Microzonation, Seismic Hazard Assessment, Strong Ground Motion

Languages

Hindi – mother tongue, English – fluent.

Fellow of Professional Bodies

- FISET: Fellow of Indian Society of Earthquake Technology, F-45
- FIGS: Fellow of Indian Geotechnical Society, F-501
- FIGU: Fellow of Indian Geophysical Union, Hyderabad, F-232

Life member of Professional Bodies

- Life Member: Indian Society of Earthquake Technology, LM-386
- Life member: Indian Society of Engineering Geology, LM-1426
- Life Member: Association of Exploration Geophysicists, Hyderabad-M1022-88
- Life Member: American Geophysical Union, USA, M-821600

Annual member of Professional Bodies

- Member: Seismological Society of America, USA
- Member: Earthquake Engineering Research Institute, USA

Adminitrative-Technical responsibilities (out side IITR)

- Chairman, Soil Dynamics Forum, (2018 continued)
- Program Advisor, SAADRI (permanent position)
- President, SAADRI Society (2023-continued)
- **President**: Indian Society of Earthquake Technology Roorkee (2017-2019)
- President: Indian Society of Earthquake Technology Roorkee (2015-2017)
- Vice President: Indian Society of Earthquake Technology, Roorkee (2013-2015)
- Vice President: Indian Society of Earthquake Technology, Roorkee (2011-2013)
- Secretary: Roorkee Chapter, Indian Society of Earthquake Technology, (1999-2014)
- Associate Editor: ISET Journal of Indian Society of Earthquake Technology, (2007-2009, 2009-2011, 2011-2013, 2013-2015, 2015-2017)
- **Member:** International Editorial Review Board, International Journal of Geotechnical Earthquake Engineering (IJGEE), DOI: 10.4018/IJGEE, ISSN: 1947-8488, EISSN: 1947-8496, 2012-2016

Adminitrative-Technical responsibilities (within IITR)

- Head, International Centre of Excellence for Dams, (May 01, 2024 continued)
- Joint Faculty, International Centre of Excellence for Dams, (October 12, 2023-April 30, 2024)
- **Dean, Finance and Planning**, August 2019 June 2023

- Chairman, Institute Space Management Committee, (Sept 20, 2022 to Dec 12, 2022)
- Chairman, Institute Website Management Committee, (Sept 20, 2022 to Dec 12, 2022)
- Chairman, Information Dissemination Committee, (Sept 20, 2022 to Dec 12, 2022)
- Chairman, Ranking Analytics Committee, (Sept 20, 2022 to Dec 12, 2022)
- Chairman, Commercial Establishments Committee, (Sept 20, 2022 to Dec 12, 2022)
- Chairman, Guest House Advisory Committee, (Sept 20, 2022 to Dec 12, 2022)
- Chairman, Security Advisory Committee, (Sept 20, 2022 to Dec 12, 2022)
- Chairman, ICC Advisory Committee, (Sept 20, 2022 to Dec 12, 2022)
- Chairman, Greater Noida Campus, (Sept 20, 2022 to Dec 12, 2022)
- I-STEM represenatativre, Department of Earhquake Engineering, 2019-onwards
- Head of the Department, Department of Earthquake Engineering, IIT Roorkee (2012-16)
- Organising Chairman, Joint Entrance Examination (Advanced), IIT Roorkee, 2019
- Chief Advisor Sports (Organised Inter IIT in 2012): Sports Association, IIT Roorkee (2010-2013)
- Chairman, Joint Entrance Examination (Advanced), IIT Roorkee, 2018
- Chairman, Joint Entrance Examination (Advanced), IIT Roorkee, 2017
- Convenor, Adhoc committee on management of Sri Saraswati Mandir, IIT Roorkee 2016-17
- Vice Chairman, Joint Entrance Examination 2010-11, IIT Roorkee
- Vice Chairman, Joint Entrance Examination 2011-12, IIT Roorkee
- **Sports advisor,** Gym, Sports Association, IIT Roorkee (2010-2013)
- Sports advisor, Squash, Sports Association, IIT Roorkee (2010-2013)
- Warden, Govind Bhawan, University of Roorkee (2001-2004)
- Warden, Ravindra Bhawan, University of Roorkee (1998-2001)

Chairing Sessions

- 1. Engineering Geology conference, IIT Delhi, 2015, IGS from gopal dhawan
- 2. Indian Geophysical Union, Kurukshetra, 2014-15 from dinesh

International visits

SI. No.	Dates	Institue and country	Purpose
1.	May 25-June 10, 2024	Oslo and Bergen, Norway	Norway for the collaboration project NATRISK
2.	December 11-16, 2023	San Francisco, California, USA	AGU2023
3.	November 16-23, 2023	Fukuoka, Japan	2 nd International Conference on Construction Resources for Environmentally Sustainable Technologies (CREST2023).
4.	Nov. 16-19, 2023	South Korea	Kyung Hee University, South Korea

5.	July 08-12, 2023	Reftek Inc, Canada	Instrumentation and MOU meeting
6.	April 24-30, 2023	Vienna, Austria	EGU Conference
7.	March 25-30, 2023	Taiwan	Attended future prospects of Earthquake at Taiwan
8.	Dec 12-16, 2022	Chicago, USA	Attended AGU
9.	May 29-June 06, 2022	Denever, USA	Attended NAFSA, Denver
10.	March 20-27, 2022	Germany	Visited universities and institutes under COPREPARE, Potsdam
11.	Sept 29-Oct 10, 2019	Israel	Seismic Al
12.	Jan 04-12, 2018	Taiwan	Project work for Taiwan Project
13.	Jan 09-14, 2017	Santiago, Chile	Presented a paper on STOCHASTIC SIMULATION OF STRONG GROUND MOTIONS FOR WESTERN HIMALAYA REGION by Neha Kumari, M. L. Sharma and I. D. Gupta at 16WCEE
			Attended Executive committee meeting of International Association of Earthquake Engineering as National Delegate from India in Santiago, Chile
14.	March12-18, 2016	NCREE, Taiwan	Seismic hazard assessment of nuclear power plants, Observer to Level 3 SHA
15.	Jan 23-30, 2016	NCREE, Taiwan	MoES research project
16.	Sept 20-22, 2015	Nepal	To attend and chair a session in seminar on "Seismic Evaluation and Retrofitting on pre & post-Earthquake", organized by Nepal Engineers Associates (NEA) and ociety of Consulting Architectural and Engineering Firms (SCAEF), September 21, 2015, Kathmandu, Nepal.
17.	Aug. 02-09, 2015	Singapore	12th Annual Meeting on AOGS
18.	Janu. 27-31 , 2015	Taipai, Taiwan	Research Project Work (NCREE)
19.	Sept 28- Oct 04, 2014	NTU, Singapore	Academic/Project discussion
20.	March 08-10, 2014	Taipai	Project work for Taiwan Project
21.	March 10-16, 2014	Singapore	Project discussions
22.	Sept. 24- 28 , 2012	Lisbon, Portugal	Presentation of papers in 15 World Coneference on Earthquake

			Engineering, Lisbon, Purtgal
23.	July 08- 14, 2012	St. Petersburg Moscow Russia	Part of the delegation for collaboration for Indo-Russioan scientific exchange programe.
24.	May 27- June 06, 2012	Norway	Project work
25.	08-10-2010 to 08-04-2011	Mexico	MoES research project work with UNAM
26.	22-10-2010 to 20-11-2010	Schengener-Staaten	
27.	07-06-2009 to 20-06-2009	Schengener-Staaten	
28.	24-12-2008	China	Presentation of papers in 14 World Coneference on Earthquake Engineering, Beijing, China
29.	20-09-2007 to 30-09-2007	Schengen- statene	
30.	10-10-2006 to 16-10-2006	Taiwan	To present paper in 4th Int. Conf. Earthquake Engineering, Taipei, Taiwan
31.	12-06-05 to 18-06-2005	Norway	Research Project work at NORSAR and NGI, Norway
32.	06-06-05 to 11-06-2005	Switzerland	To check the strong ground motion instruments at GEISIG, Switzerland
33.	12-12-2004 to 05-01-2005	Schengen- statene	
34.	09-12-2004 to 09-06-2005	U.K.	Project work
35.	July 29-August 12, 2004	Canada	Presentation of papers in 13 World Coneference on Earthquake Engineering, Vancouver, British Columbia, Canada
36.	Oct-1988	U.K.	Earth Data Ltd for Telemetry equipment to be deployed under DST project in Garhwal region
37.	Sept-Oct, 1989	Potsdam, Germany	One month UNESCO course on seismology and seismic hazard assessment in Postdam

Major Sponsored Projects

Number of major sponsored projects: 24

Number of sponsored projects as PI: 11

Number of sponsored projects as PI in last Five years as PI: 06

- Development of Indiginions Earthquake Early Warning System, (PI), IMPRINT2, SERB, DST, 2019-2022, New Delhi 1.20 Crores
- 2. Earthquake Early Warning System, (PI), Uttarakhand Government, 2017-2019, (Rs. 3.20 Crores)
- 3. Seismological Network Around Tehri Region *(PI)*, THDC India Ltd., Rishikesh, **2016-2019**, (Rs. 285.5 Lacs)
- 4. Strong Motion Network Around Tehri Region *(PI)*, THDC India Ltd., Rishikesh, **2016-2019**, (Rs. 43.7 Lacs)
- 5. Operation and Strong motion Accelerograph in Tehri and Koteshwar, THDC India Ltd., Rishikesh, **2015-2016**, (Rs. 30.91 Lacs)
- 6. Seismological Network Around Tehri Region *(PI)*, THDC India Ltd., Rishikesh, **2013-2016**, (Rs. 287.72 Lacs)
- 7. Probabilistic seismic hazard assessment and estimation of strong ground motion for Delhi region (PI), EREC, New Delhi, **2011-2013**, (Rs. 5.70 Lacs)
- 8. Shear Wave Velocity profiling in NCT, Delhi using MASW technique (PI), EREC New Delhi, 2009-2011, (Rs.50.00 Lacs)
- 9. Application of DIF-SAR to investigate critical deformation regimes in Garhwal Kumaon Himalaya related to earthquakes and landslide **(PI)**, DST New Delhi, **1997-1999**, (Rs. 15.75 Lacs)
- 10. Broadband Seismograph Network for Modelling of earthquake source & upper crust in the GarhwalKumaon Himalaya region. (PI), DST New Delhi, 1996-1998, (Rs. 24.96 Lacs)
- 11. Study of Shallow earthquakes in Indian region using Differential SAR Interferometry, **(PI)**, AICTE, New Delhi, **1994-1995**, (Rs. 10.00 Lacs)

Number of sponsored projects as Co PI – 13

Number of sponsored projects as Co PI in last five years – 01

- 12. Site Characterization and Attenuation Studies for Garhwal-Kumaun Himalaya and Delhi Region(Co-PI), Funded by Ministry of Science and Technology, New Delhi, 2015-2018 (Rs. 23.24 Lacs)
- 13. Indo Norwegian programme on earthquake engineering (Co-PI), NORSAR, Norway, **2011-2015**, (1182000 NOK)
- 14. Strong motion network in NCT region (Co-PI), DST New Delhi, 2011-2014, (Rs. 45.81Lacs)
- 15. Source modeling and generation of strong motion: A case study of Sumatra earthquake of Dec 26, 2004 (Co-PI), DAE, BRNS, **2011-2013**, (Rs. 15.86 Lacs)
- 16. Estimation of site effects and ground motion in Delhi and Mexico city using strong ground motion data and preparation of near real time shake map (*Co-PI*), DST, New Delhi, **2010-2013** (Rs. 14.61

Lacs)

- 17. Seismological network around Tehri region (Co-PI), THDC, Rishikesh, 2010-2013, (Rs.171.00 Lacs)
- 18. Seismological network around Tehri region (Co-PI), THDC, Rishikesh, 2007-2010, (85.31 Lacs)
- 19. Indo Norwegian programme on earthquake engineering (Co-PI), NORSAR, Norway, **2006-2011**, **(**621264 NOK)
- 20. Seismological network around Tehri region (Co-PI), THDC, Rishikesh, 2004-2007, (Rs. 97.24 Lacs)
- 21. Indo Norwegian Program of institutional Corporation on Earthquake Engineering (Co-PI), NORSAR Norway, **2004-2006**, (Rs.33.95 Lacs)
- 22. Seismological network around Tehri region (Co-PI), THDC, Rishikesh, 2001-2004, (Rs.85.96 Lacs)
- 23. Seismological network around Tehri region (Co-PI), THDC, Rishikesh, 1998-2001, (Rs.85.28 Lacs)
- 24. **1995-1996**: SAR interferometry for mapping land subsidence due to mining in Jharia Coal Field, Jharkhand, (Co-PI), DST New Delhi

Consultancy Projects

442

Number of Consultancy Projects as PI : 156

Number of consultancy projects as PI in last five years: 78

Number of Consultancy Projects as Co-PI: 286

Number of consultancy projects as Co-PI in last five years: 56

Only some of the important projects are enlisted below

- Assessment Of Vibrations And To Establish The Structural Soundness/Integrity Of The Existing Buildings Over The Underground Corridor From Central Secretariat To Kashmere Gate Of DMRC, Delhi Metro Rail Corporation Ltd., New Delhi, 2017-2018Rs. 28.75 Lacs.
- Vetting of technical reports, data analysis reports, survey finding reports for Risk assessment studies, Uttarakhand Disaster Recovery Project, PI, Uttarakhand Government, 2016-2019, Rs. 160.00 Lakhs, Co PI: Profs NK Goel, Y. Singh, M. Shrikhande, Ravi Jakka, J. Das, A. Saraf, B. R. Gurjar, Rajat Agrawal, Z. Rahaman, A. Joshi, S. C. Gupta
- 3 Seismic Hazard Assessment for South India, DRIP, CWC, New Delhi, , 2016-2018, Rs. 82.44 Lacs, PI, Co-PI: M. Shrikhande and J. Das
- 4 Processing, Analysis and Interpretation of the Seismological Data and Preparation of Annual Technical Report based on one year Data Recording, NTPC KOL Dam, Himachal Pradesh, , 2016-2017, Rs. 17.25 Lacs, Pl, Co-Pl: S. C. Gupta
- Assessment of Lateral Load Pile Capacities for harduaganj Thermal Power Station, Aligarh, UP., Head of Civil Dept., Joshiba JSW Power Systems Pvt. Ltd., Gurgaon, 2016-2017, Rs. 60.11 Lacs,
- 6 Seismic hazard studies for infield pipe line route (west block) M.P., Reliance Industries Ltd, 2015-2018, Rs. 27.36 Lacs, PI

- 7 Operation and Maintenance of Six Stations Seismological Network around Kol Dam Site, NTPC, KOL Dam Himachal Pradesh, 2015-2018, Rs. 17.10 Lacs, Pl
- 8 Operation and Maintenance of Six Stations Seismological Network around Ettalin And Attulni Dam Site, Arunachal Pradesh, 2015-2018, Rs. 45.6 Lacs, PI
- 9 Operation and Maintenance of five Stations Seismological Network around Lakhwar Hydro Electric Project Uttarakhand, Uttarakhand Jal Vidhut Nigam Ltd., Lakhwar Bhawan, Dakpathar, Dehradun, 2015-2016, Rs. 62.97 Lacs, PI
- Operation of Strong Motion Accelerographs in Tehri & Koteshwar, THDC India Ltd., Rishikesh, 2015-2016, Rs. 10.26 Lacs, PI
- Operation and Maintenance of Six Stations Seismological Network around Kol Dam Site, NTPC, KOL Dam Himachal Pradesh, 2014-2017, Rs. 20.22 Lacs, Pl
- 12 Kalpasar multipurpose scheme, Kalpasar Department, Govt. of Gujarat, 2014-2016, Rs. 8.98 Lacs, PI
- 13 Site Specific Design Earthquake Parameter Studies for Rishikesh-Karanpryag new BG Rail line Project in Uttarakhand, Rail Vikas Nigam Ltd, Rishikesh, 17.04.2017 to 31.03.2019, 1,38,00,000.00, Co PI
- Site Specific Seismic Design Parameters Study for Mawblei Hydro Electric Project in West Khasi Hills, District, Meghalaya, Meghalaya Power Generation Corporation Ltd. Meghalaya, 30.06.2017 to 31.03.2019, 13,80,000.00, Co PI

Recognition

- Member: Taskforce, Uttarakhand Disaster Recovery Project, Govt. of Uttarakhand, 2016-2018
- Chairman: Strong motion instrumentation, Bhakra Beas Managment Board, 2015-2017
- Member: International Editorial Review Board, International Journal of Geotechnical Earthquake Engineering (IJGEE), DOI: 10.4018/IJGEE, ISSN: 1947-8488, EISSN: 1947-8496, 2012-2016
- Alternate Member: CED-39- Earthquake Engineering Sectional Committee, Bureau of Indian Standard, New Delhi, 2012-2016
- Member: National committee on site specific design earthquake parameters, CWC, New Delhi, 2012-2016
- Member: HPSDMA, Govt. of Himachal Pradesh, Disaster Management Cell, Shimla, 2012-2016
- Member: Committee on Indira Sagar Polavaram Project, Irrigation & CAD Department, Govt. of Andhra Pradesh, 2012-2016
- Member: Koyna Tremor Sub Committee (KTSC), Dam Safety Organization, Nashik, 2012-2016
- Member: Advisory group for preparation of upgraded earthquake hazard maps, NDMA, New Delhi, 2012-2016
- Member: Project Advisory Committee on Seismicity and Earthquake Precursors, Ministry of Earth Sciences, New Delhi, 2012-2016

- Co-author of the Guidelines for preparation and submission of site specific seismic study report of river valley project to national committee on seismic design parameters, Central Water Commission, Government of India.
- Chairman, Subcommittee on framing the guidleines for seismic microzonation, BIS, New Delhi
- Reviewer: many national and international journals

Awards:

- A.S. Arya-IIT Roorkee Disaster Prevention Award-2012, IIT Roorkee
- Best paper award for the year 2011-12, Wadia Institute of Himalayan Geology, Dehradun
- Best commercialization for Strong Motion Sensor Award, IIT Roorkee, 2024

Patents Granted:

- Patent No 496293-2024: A Strong Ground Motion Sensor, The Patent Office, Government of India, 09-01-2024
- 2. Patent No 489653 2024: Tiltmeter with Liquid-Liquid Measuring, The Patent Office, Government of India, 27-12-2024.

Patent Filed

- 1. CRN007: A method for improving the strength of pond ash deposits
- CRN008: Method for improving the liquefaction resistance of pond ash deposits
- 3. Application IITRCRN174 with Publication No. 202111062011 dated 30/12/2021: A low cost Earthquake Early Warning System for Home/office
- 4. Application IITRCRN172 with Publication No. 202111000637 dated 05/01/2022: A low cost Earthquake Early Warning Siren for public.

Lectures Delivered

- 1. Challenges in Seismic Hazard Assessment: Indian Perspective, 44th ISET Annual Lecture, December 08, 2023.
- 2. A. S. Arya memorial lecture, "Knowing earthquakes" Sept 02, 2020
- 3. Webinar arranged by NIDM
- 4. Webinar arranged by Engineering College
- 5. Webinar arranged by ISET
- 6. NPCIL Bombay

PhD guided

Completed- 23

1 R. Kumar, Earthquake occurrence in India and its use in seismic hazard estimation using probabilistic

- methods, 2007
- 2 **Anupam Tyagi,** Physics of the earthquake sources and development of expert system for earthquake prediction, 2007
- 3 **Javed Ahemed Nagash**, Microzonation of megacities, 2008
- 4 **Navin Pareek,** Landslide Hazard Zonation in Garhwal Himalaya using remote sensing techniques, 2008
- 5 Shipra Malik, 3D Crustal velocity structure Modelling of Garhwal Himalayas, 2009
- 6 Girish C. Joshi, Estimation of uncertainties in probabilistic seismic hazard analysis, 2009
- 7 **Atanu Bhattacharya,** Surface Displacement Measurement Studies using DInSAR in a Part of Himalayas, 2013
- 8 Ashish Herbendoo, Stochastic Modeling of Ground Motion for Indian Himalaya Region, 2013
- 9 Ranjit Das, Probabilistic Seismic Hazard Assessment for Northeast India Region, 2013
- Pushpa Chaudhary, Simulation of Strong Ground Motion Using Semi Empirical Modelling Technique, 2014
- 11 Rakhi Bhardwaj, Algorithm for Earthquake Early Warning System, 2014
- 12 **Neeti Bhargava,** Mathematical Modelling for Earthquake Prediction through Animal Abnormal Behaviour, 2014
- 13 A. K. Srivastava, Seismic Microzonation of an Urban Habitat, 2014
- 14 Rajeev Sachdeva, Prediction of Strong motion parameters using ANN, 2015
- Narsihma D S, Seismic risk assessment due to slope failures, 2016
- 16 Vaneeta Devi, Time Frequency Analysis of ground motion time history of microearthquakes (2018)
- 17 **Chhavi**, Seismic Hazard Assessment using extreme statistics, 2018
- 18 **Manoj Kuri**, Studies on landslide movements in parts of Himalaya in Uttarakhand using DINSAR techniques, 2019
- 19 **Ritu Raj Nath**, Seismically induced Landslide Hazard Zonation, 2019
- 20 **Shweta Bajaj**, Conditional probabilities of strong ground motion in the Himalaya,2020
- 21 **Neha Kumari,** Comprehensive ground motion simulation and its prediction in western Himalaya region, 2020
- 22 **Sunil Saini,** Self consistent scaling laws for the Himalayas, 2020
- **Priyanka Sharma**, Site characterization and liquefaction potential assessment in Indo-Gangetic Plains, 2020.

Ongoing-13

- 24 **Rajni Modi**, Local Earthquake Tomography
- 25 **C Lalla Wama**, Seismic hazard and risk assessment in NE India
- 26 **Deepak Rawat**, Landslide studies using time frequency analysis
- 27 **Arun Tyagi**, Landslide and earthquakes
- 28 Mayuri, Seismic, Risk Assessment in north east

- 29 **Mudit Srivastava,** Soil characterization and deep soil effects
- 30 **Deepak Jhangra**, Crustal velocity structure of North West Himalaya using Surface Wave Dispersion
- 31 **Ritesh Shaw,** Prediction of soil response and Generation of shake maps
- **Anupa Chakraborty,** Landslide monitoring and prediction using seismological data through machine learning
- 33 **Abhishek Pandey**, Seismotectoni Modlling of Himalayas
- 34 **Nupoor Gupta,** Earthquake Source modelling
- 35 **Subhaneet,** Al in earthquake engineering
- 36 **Sudhir Yadav,** Coda Q

Master's Degree Supervision: 80

- 1. Naveen, Ground motion prediction equations, 2024
- 2. Md. ILIYAS KHAN, Attenuation relationships for strong ground motion, 2024
- **3. Avichal,** Analysis of Nepal Himalayan seismicity, 2023
- 4. **Subash Patel,** Probabilistic Seismic Hazard Assessment of VPHEP, Pipalkoti in Chamoli district of Uttarakhand. 2023
- 5. Hardik Arora, Scenario earthquake generation and risk estimation, 2022
- 6. **Aman Kumar**, Seismic Hazard Assessment in Case of Lystric Faults, 2022
- 7. Mithlesh Sarkar, Estimation of local site effects using Bihar Nepal isoseismals, 2021
- 8. Monika Gautam, Landslide studies in Garhwal Himalaya, 2020
- 9. Satyajit Mitra, Time frequency analysis of accelerograms, 2020
- 10. Devendra Paliwal, Comparetive analysis of landslide hazard zonation mapping, COEDMM, 2020
- 11. Ayushmaan Sharma, Conditional Probability Assessment in Himalayas, 2019
- 12. Sahil Gulab Angural, Near Field Ground Motion Effects in GMPEs, 2019
- 13. Ashish Bahuguna, Strong Ground Motion Analysis from Himalayas, 2019
- 14. Deepak Kumar, Seismic Risk assessment in Rural and Urban Areas, COEDMM, 2019
- 15. Akanksha Agarwal, Time Dependent Seismic Hazard Assessment, 2018
- 16. Ali Ahmed Khan, Reservoir Induced Seismicity (RIS) due to Tehri Dam, 2018
- 17. Arun Tyagi, Land Slide Hazard Zonation in Garhwal Himalaya, 2018
- 18. C Lalla Wma Wma, Seismic Hazard and Risk Assessment for NE India, 2018
- 19. Rinku, Site Amplification and Attenuation Studies for Himalayan Region, 2018
- 20. Ritesh Kumar Rai, Site Amplification Case Study, 2018
- 21. Vivek Singh Yadav, Induced Seismicity, 2018
- 22. Vivek Bhardwaj, Seismic hazard assessment for Uttarakhand, 2018
- 23. Singh Jalesh Santosh, Estimation of bed rock depth using GPR, 2017
- 24. Harshvardhan Singh, Scaling Laws in Himalayas, 2017
- 25. **Kuldip Khichar**, Site Amplification & Attenuation Studies for Garwal-Kumaun Himalaya & amp; Delhi Region, 2017
- 26. Rishi Grewal, Seismic Risk Assessment of Srinagar city, Jammu and Kashmir, COEDMM, 2017
- 27. **Gautam Kumar**, Estimation of bed rock using GPR, 2016
- 28. **Ashish Kumar Verma**, Generation of Shake maps, 2016
- 29. **Rahul Kumar**, Seismic hazard analysis with moment release constraint in Kumaoun and Garhwal region, 2016
- 30. Saurabh Kumar Mangal, Evaluation of dynamic response of deep soils, 2016

- 31. **Ankita Prasun**, Seismic Risk Assessment due to Scenario Earthquake A case study for Bihar Nepal 1934 Earthquake, 2016
- 32. Ishan Roy, Methodology for generation of Shakemaps for Delhi region, 2015
- 33. **Deepika Sayana**, Deep soil effect, 2015
- 34. Phibe Khalko, Seismic Hazard assessment, 2015
- 35. **Shivani Chauhan**, Damage Scinario under great earthquake A case study of 1934 Bihar Nepal Earthquake, COEDMM, 2015
- 36. Shivani Singh, Effect of deep soils on strong ground motion, 2014
- 37. Vaddi Monica, Seismic Hazard estimation for south India, 2014
- 38. Smita Singh, Ground motion simulation using modified semi empirical methodology, 2014
- 39. Mod Ahemad, Amplification of strong ground motion due to deep soils, 2013
- 40. Akhilesh Singh, Seismic Hazard and Risk Assessment for Indo-Gangetic plains, 2013
- 41. Chibi Rajram, Earthquake Early Warning System for North India, 2013
- 42. **Rebecca RC**, Evaluation of strong ground motion prediction equations, 2012
- 43. Nitesh Patel, Earthquake Early warning system, 2012
- 44. Saurabh Vijay, Advances in SAR interferometry, 2012
- 45. Harish Shinde, Seismic Microzonation of Chandigarh City, 2011
- 46. Manu Mohan, A Neural Network Approach for Earthquake Early Warning System, 2011
- 47. Amarjeet Birajdar, Attenuation relationship for spectral displacement for Himalayan region, 2011
- 48. Abhishek, Integrated Geo exploration over Solani Knee band, NW Himalaya, 2010
- 49. Venu Gopal, Comparison of site specific PGA using neural networks and regression models, 2010
- 50. **A. Panchal**, Determination of design ground motion parameters for displacement based design, 2010
- 51. Mansi Kulkarni, Seismic Hazard Assessment using Non Poissonian Models, 2010
- 52. Jainish Kotadia, Development of spectral attenuation relationship for Indian region, 2007
- 53. **Shiva Kumar**, Application of artificial Neural Network for prediction of spectral acceleration in site specific, 2006
- 54. Ravindra Golia, Estimation of cumulative and conditional probabilities in Himalayas, 2006
- 55. **Anshul Kumar**, Seismic microzonation of rural areas, 2005
- 56. Prashant Ambulkar, Development of methodology for insurance tariff against earthquakes, 2005
- 57. Shivani Sharma, Reflection of seismic waves from non-welded interfaces, 2005
- 58. Murugavel Raja, Automatic Phase Picking of Seismic Signals using ANN, 2005
- 59. **Sonal Gupta**, Dem generation from SAR interferometry, 2005
- 60. A. Ahemad, Development of Automatic Phase pickers for earthquakes, 2004
- 61. **Atanu Bhattacharya**, Estimation of strong ground motion in Himalayas using strong ground motion and SRR data, 2004
- 62. J. Niwas, Development of world wide GIS earthquake based system, 2003
- 63. Pratim Sil, SAR interferrometry studies in Jharia Coal fields, 2003
- 64. **G. C. Joshi**, Seismic hazard analysis and risk computation, 2002
- 65. **K. Samba S Rao**, Seismic microzonation of Delhi, 2002
- 66. **Satendra Saini**, Development of attenuation relationship for Himalayan region using Indian Strong motion array data, 2002
- 67. S. K. Gupta, Remote sensing application in seismic hazard studies, 2001
- 68. M. Khan, Seismic hazard Analysis using GIS, 2001
- 69. R. G. K. Nath, Development of Attenuation relationship for Indian Region, 2000
- 70. Venkata Raju, Seismic hazard Analysis using Artificial Neural network, 2000
- 71. S. Panda, Design of an 10-storyed building in NE India at location C, Maharashtra, 1999
- 72. R. G. K. Nath, Design of an 10-storyed building in NE India at location B, Mehghalaya, 1999

- 73. Amit Sahu, Design of an 10-storyed building in NE India at location A, Assam, 1998
- 74. Umakant Singh, Design of an 8-storyed reinforced concrete office building in NE India, 1998
- 75. R. Gautam, Background noise characteristics of ground using broad band seismometer, 1998
- 76. Kiran Pal, Fabrication of interface unit between seismometer and recorder, 1998
- 77. Kh. Ibophisak Singh, Seismological studies and design of Earth and Rockfill dam, 1995
- 78. R. Verma, Determination of coda magnitude of local earthquakes, 1991
- 79. A Ghosh, Automatic earthquake recognition, 1990
- 80. **Pravesh Gupta**, Design and Fabrication of an instrument for the measurement of ground conductivity, 1989

Conference Organised

- Chairman: A New Perspective on Natural Hazard, Risk & Insurance, A workshop on challenges and innovations, May 2018
- **Co-Chairman**: 6th International Conference on Recent Adavnces in Geotechnical Earthquake Engineering, 2016, Greater Noida
- **Co-Chairman**: 7th International Conference on Recent Adavnces in Geotechnical Earthquake Engineering, 2020, ISC, Bangalore
- Chairman, 15th Symposium on Earthquake Engineering, 2014
- Organizing Secretary: 14th Symposium on Earthquake Engineering, 2010
- Organizing Secretary: 13th Symposium on Earthquake Engineering, 2006,
- Organizing Secretary: 12th Symposium on Earthquake Engineering, 2002
- Organizing Secretary: Indo Norwegian Workshop, 2012

Collaboration:

- Indo Norwegian Project (2003-2015)
- Indo Taiwanese Project (2013-2015)
- Indo Mexican project on site characterization in New Delhi, 2009-2011.
- Indo Norwegian Project on seismic Risk Assessment, 2006-2010
- Indo Norwegian Programme on Institutional Cooperation on Earthquake Engineering, 2003-2006
- Seismic Hazard estimation of KGDVI site, NGI, Norway
- Seismic Hazard estimation of KGDIII site, NGI, Norway
- Conducted UNESCO Course on Seismology and Seismic Risk Assessment, Nov 04 to Dec 06, 1993; 30 participants from 23 countries and faculty from 3 countries participated

Books Authored:

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- 2. Rinku Mahanta, Vipul Silwal and M. L. Sharma (2024). Body Waves—and Surface Waves—Derived Moment Tensor Catalog for Garhwal-Kumaon Himalayas, Recent Developments in Earthquake Seismology, Present and Future of Seismological Analysis, Recent Developments in Earthquake Seismology, 47-63, Springer International Publishing.
- 3. Pankaj Kumar, Kamal, Mukat Lal Sharma, R.S. Jakka, Pratibha (2023). Instrumentation of India's First Regional Earthquake Early Warning System and Site Characterization of Its Stations, Geohazards: Analysis, Modelling and Forecasting, Springer Nature Singapore, 155-183.
- 4. Ritu Raj Nath, Mukat Lal Sharma, Naveen Pareek, Shilpa Pal, Shweta Bajaj, Neha Kumari (2023), Earthquake Induced Landslide Hazard Evaluation for Seismic Microzonation: A Case Study of the Garhwal Himalayas, Earthquake Engineering and Disaster Mitigation: Contributions in the Honour of Late Professor DK Paul, Springer Nature Singapore, 59-83.
- 5. Neetu Goswami, SC Gupta, Ashwani Kumar, M. L. Sharma (2022). Source and Path Characteristics of Chamoli Region, India, Advances in Geophysics, Tectonics and Petroleum Geosciences: Proceedings of the 2nd Springer Conference of the Arabian Journal of Geosciences (CAJG-2), Tunisia 2019, Springer International Publishing, 187-190.
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- 1. Fault Plane Solution, 45 min, EERC, Roorkee
- 2. Tsunami Part-I, 30 min, EERC, Roorkee
- 3. Tsunami Part-II, 30 min, EERC, Roorkee
- 4. Tsunami Part-III, 30 min, EERC, Roorkee
- 5. Earthquake Magnitude Intensity Part-I
- 6. Earthquake Magnitude Intensity Part-II
- 7. Seismological Instrumentation, 30 min, EERC Roorkee
- 8. Chi Chi Earthquake Museum Taiwan, 10 min
- 9. Seismograph, 15 min

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Prof. M. L. Sharma has more than 35 years of experience in teaching, research and consultancy in the area of Earthquake Engineering. In addition to regular teaching he has prepared many films on Earthquake Engineering and participated in short term courses and international projects on earthquake engineering. Prof. Sharma has rendered expert advice to more than 500 engineering sites in India and abroad regarding the seismic hazard and risk assessment. The engineering projects include major HE projects, dams, nuclear power plants, thermal power plants, bridges, high rise buildings etc. He has successfully attempted to analyse and quantify the uncertainties in final hazard estimates using PSHA. His work on seismic hazard assessment and soil characterizations has lead to the seismic microzonation of National Capital Region of Delhi. Based on the seismic hazard assessment and soil characteristic studies carried out by Prof. Sharma, the seismic microzonation of Dehradun city, Srinagar city (J&K), and Phuentsholing city in Bhutan has also been carried out which is further being used for seismic risk assessment in terms of money and death tolls.

His long association with the strong ground motion program of Department of Science and Technology has resulted in development of strong ground motion attenuation relationship for the horizontal and vertical PGA based on Indian Strong Motion data which was upgraded to spectral attenuation relationship. The relationship has been extensively used to estimate seismic hazard in India and worldwide.

Prof. Sharma played key role in the deployment of the first Digital Telemetered Seismological Sample Array in Garhwal Kumaoun Himalaya in 1985-86 in India with the aim to study present seismic status and RIS around Tehri dam. The acquired high quality digital data was used to estimate the source parameters for the first time using digital data in this region and the Seismic Moment Magnitude relationship for the Garhwal Himalaya was proposed by Prof. Sharma in 1994. Based on the data collected by these arrays, including Kol (2015-17), Lakhwar (2016-17) and Tehri (2009-2017) 3-Dimensional velocity structure was proposed for Garhwal Himalaya.

Prof. Sharma played key role in MOU for Kalpasar studies where he is the PI of the three maor schemes for Kalpasr project in Gujarat (2012-2018).

Prof. Sharma has also palyed key role in MOU between Madhya Pradesh and Uttarakhand for the seismic instrumentation of the dams under DRIP program of CWC. This MOU is being sigend on Sept 15, 2017 in Bhopal.

Prof. Sharma introduced the studies based on SAR interferometry for the deformation estimations and has been instrumental in starting the use of GIS/GPS related earthquake studies and application of SAR differential interferromtry for shallow earthquake. The convergence rates between Ganga and Yamuna Tear near the Himalayan Frontal Fault has been estimated using this methodology.

To initialize the EEW in India, IIT Roorkee was the first institute to deploy 84 sensors in seismic gap region of Garhwal Himalaya with the help of Ministry of Earth Sciences in 2015. This project was thus successfully completed in March 2017 but no measures were taken to issue the warning to public.

Subsequently, in May 2017 Government of Uttarakhand sanctioned a project to IIT Roorkee for maintenance of present earthquake early warning system, installation of 100 additional sensors covering Kumaun region, installation of sirens in SEOC at Dehradun and all district HQs of Uttarakhand and installation of 100 sirens in cities of Dehradun and Haldwani. It will be the first instant when EEW will go public.

He has been actively associated with many international programs specially with Norway, Mexico and Taiwan for disaster mitigation. The lessons learnt through many damage surveys of moderate earthquake carried out by him have resulted in advice for future in form of many of his international publications. Based on the contributions by Prof. Sharma in disaster mitigation he has been awarded the A. S. Arya-IITR Disaster prevention award -2012. He is Fellow of Indian Society of Earthquake Technology, Indian Geotechnical Society and Indian Geopphysical Union.