Curriculum vitae

M. L. Sharma

Professor HAG, 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
Phone number(s):	(+91) 1332 285536 (Landline) (+91) 9412075062 (Mobile) (+91) 1332 276899 (Fax)
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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, University of Roorkee, India
27 Dec, 1985-26 June, 1986	Scientist B, Department of Earthquake Engineering – University of Roorkee, India

Research Interests

Engineering Seismology, Seismic Hazard and Risk Assessment, Seismic Microzonation, Strong Ground Motion Prediction, Earthquake and Landslide Early Warning Systems, Seismological Networks, strong

motion Instrumentation, Seismic Safety of Dam

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

Administrative-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

Administrative-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 representative,** Department of Earthquake 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

Sl. No.	Dates	Institute and country	Purpose
1.	30 June 2024 to 05 July 2024	Milan, Italy	18WCEE, 2024
2.	May 25-June 10, 2024	Oslo and Bergen, Norway	Norway for the collaboration project NATRISK
3.	April 20-24, 2024	Australia	visited the School of Civil and Environmental Engineering, UNSW
4.	June 11-13, 2024	Nepal	
5.	June 24-28, 2024	South Korea	AOGS, 2024
6.	December 11-16, 2023	San Francisco, California, USA	AGU2023
7.	November 16-23, 2023	Fukuoka, Japan	2nd International Conference on Construction Resources for Environmentally Sustainable Technologies (CREST2023).
8.	Nov. 16-19, 2023	South Korea	Kyung Hee University, South Korea
9.	July 08-12, 2023	Reftek Inc, Canada	Instrumentation and MOU meeting
10.	April 24-30, 2023	Vienna, Austria	EGU Conference
11.	March 25-30, 2023	Taiwan	Attended future prospects of Earthquake at Taiwan
12.	Dec 12-16, 2022	Chicago, USA	Attended AGU
13.	May 29-June 06, 2022	Denever, USA	Attended NAFSA, Denver
14.	March 20-27, 2022	Germany	Visited universities and institutes under COPREPARE, Potsdam
15.	Sept 29-Oct 10, 2019	Israel	Seismic AI
16.	Jan 04-12, 2018	Taiwan	Project work for Taiwan Project
17.	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
18.	March12-18, 2016	NCREE, Taiwan	Seismic hazard assessment of nuclear power plants, Observer to Level 3 SHA

19.	Jan 23-30, 2016	NCREE, Taiwan	MoES research project
20.	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 society of Consulting Architectural and Engineering Firms (SCAEF), September 21, 2015, Kathmandu, Nepal.
21.	Aug. 02-09, 2015	Singapore	12th Annual Meeting on AOGS
22.	Janu. 27-31 , 2015	Taipai, Taiwan	Research Project Work (NCREE)
23.	Sept 28- Oct 04, 2014	NTU, Singapore	Academic/Project discussion
24.	March 08-10, 2014	Taipai	Project work for Taiwan Project
25.	March 10-16, 2014	Singapore	Project discussions
26.	Sept. 24- 28 , 2012	Lisbon, Portugal	Presentation of papers in 15 World Conference on Earthquake Engineering, Lisbon, Purtgal
27.	July 08- 14, 2012	St. Petersburg Moscow Russia	Part of the delegation for collaboration for the Indo-Russian scientific exchange program.
28.	May 27- June 06, 2012	Norway	Project work
29.	08-10-2010 to 08-04-2011	Mexico	MoES research project work with UNAM
30.	22-10-2010 to 20-11-2010	Schengener-Staaten	
31.	07-06-2009 to 20-06-2009	Schengener-Staaten	
32.	24-12-2008	China	Presentation of papers in 14 World Conference on Earthquake Engineering, Beijing, China
33.	20-09-2007 to 30-09-2007	Schengen- statene	
34.	10-10-2006 to 16-10-2006	Taiwan	To present a paper in 4th Int. Conf. Earthquake Engineering, Taipei, Taiwan
35.	12-06-05 to 18-06-2005	Norway	Research Project work at NORSAR and NGI, Norway
36.	06-06-05 to 11-06-2005	Switzerland	To check the strong ground motion instruments at GEISIG, Switzerland
37.	12-12-2004 to 05-01-2005	Schengen- statene	

38.	09-12-2004 to 09-06-2005	U.K.	Project work
39.	July 29-August 12, 2004	Canada	Presentation of papers in 13 World Conference on Earthquake Engineering, Vancouver, British Columbia, Canada
40.	Oct-1988	U.K.	Earth Data Ltd for Telemetry equipment to be deployed under DST project in Garhwal region
41.	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 : 28

Number of sponsored projects as PI : 13

Number of sponsored projects as PI in last Five years as PI : 02

1. Seismological Network Around Tehri Region and its implications through a 18-station Seismological Network Installed in the region around Tehri Dam, ***(PI)***, THDC India Ltd., Rishikesh, **2024-2027**, (Rs. 487.09 Lacs).
2. Development of International Centre of Excellence for Dams, ***(PI)***, Central Water Commission, Dept. of Water Resources, ***2023-2028***, (Rs. 108.00 Crore).
3. Development of Indiginions Earthquake Early Warning System, ***(PI)***, IMPRINT2, SERB, DST, New Delhi, **2019-2023**, 1.20 Crores.
4. Earthquake Early Warning System, ***(PI)***, Uttarakhand Government, **2017-2019**, (Rs. 3.20 Crores)
5. Seismological Network Around Tehri Region ***(PI)***, THDC India Ltd., Rishikesh, **2016-2019,** (Rs. 285.5 Lacs)
6. Strong Motion Network Around Tehri Region ***(PI)***, THDC India Ltd., Rishikesh, **2016-2019,** (Rs. 43.7 Lacs)
7. Operation and Strong motion Accelerograph in Tehri and Koteshwar, THDC India Ltd., Rishikesh, **2015-2016,** *(Rs. 30.91 Lacs)*
8. Seismological Network Around Tehri Region ***(PI)***, THDC India Ltd., Rishikesh, **2013-2016,** (Rs. 287.72 Lacs)
9. Probabilistic seismic hazard assessment and estimation of strong ground motion for Delhi region (PI), EREC, New Delhi, **2011-2013**, (Rs. 5.70 Lacs)
10. Shear Wave Velocity profiling in NCT, Delhi using MASW technique **(PI),** EREC New Delhi, **2009-2011**, (Rs.50.00 Lacs)

11. Application of DIF-SAR to investigate critical deformation regimes in Garhwal Kumaon Himalaya related to earthquakes and landslides **(PI),** DST New Delhi, **1997-1999,** (Rs. 15.75 Lacs)
12. 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)
13. 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 – 16

Number of sponsored projects as Co PI in last five years – 04

14. Measurement of Rotational Seismic Ground Motion in Garhwal Himalayas ***(Co-PI),*** **THDC India Limited, Rishikesh, 2023-2024, (Rs. 292 Lacs)**
15. Strong Motion Accelerographs (SMAs) Network installed in Tehri and Koteshwar Dams ***(Co-PI),*** **THDC India Limited, Rishikesh, 2024-2027, (Rs. 102 Lacs).**
16. Physics based dynamic response of urban layer and free field ground motion synthetics for earthquake risk mitigation ***(Co-PI),*** **Scheme for Transformational & Advanced Research in Sciences (STARS), Ministry of Education, Indian Institute of Science Bangalore, 2023-2024, (Rs. 64 Lacs).**
17. Nonlinear stability of sliding: a machine learning and mathematical modelling based analysis of interfacial slip stability ***(Co-PI),*** **THDC India Ltd, Rishikesh, 2023-2024, (Rs. 43.99 Lacs)**
18. Site Characterization and Attenuation Studies for Garhwal-Kumaun Himalaya and Delhi Region***(*****Co-PI),** Ministry of Science and Technology, New Delhi, **2015-2018 (Rs. 23.24 Lacs)**
19. Indo Norwegian programme on earthquake engineering (Co-PI), NORSAR, Norway, **2011-2015,** (1182000 NOK)
20. Strong motion network in NCT region***(Co-PI)***, DST New Delhi, **2011-2014**, (Rs. 45.81Lacs)
21. 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)
22. 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)
23. Seismological network around Tehri region (Co-PI), THDC, Rishikesh, **2010-2013**, (Rs.171.00 Lacs)
24. Seismological network around Tehri region (Co-PI), THDC, Rishikesh, **2007-2010**, (85.31 Lacs)
25. Indo Norwegian programme on earthquake engineering (Co-PI), NORSAR, Norway, **2006-2011, (**621264 NOK)
26. Seismological network around Tehri region (Co-PI), THDC, Rishikesh,**2004-2007**, (Rs.97.24 Lacs)
27. Indo Norwegian Program of institutional Corporation on Earthquake Engineering (Co-PI), NORSAR Norway, **2004-2006,** (Rs.33.95 Lacs)

28. Seismological network around Tehri region (Co-PI), THDC, Rishikesh, **2001-2004,** (Rs.85.96 Lacs)
29. Seismological network around Tehri region (Co-PI), THDC, Rishikesh, **1998-2001**, (Rs.85.28 Lacs)
30. **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

1 Seismological studies in Tehri region and its implications through a 18- station Seismological Network installed in the region around Tehri dam, THDC India Ltd., Rishikesh, 2024-2027

2 Site Specific Seismic Studies and Seismic Design Parameters for Construction of Four Lane Greenfield Bridge, Amritsar, S.P. Singla Constructions PVT. LTD., New Delhi, 2023-2025

3 Site Specific Seismic Design Earthquake Parameters Study for Arakot Tiuni Hydro Electric Project (81MW) in Distt. Uttarkashi, Uttarakhand, UJVN LTD., Dakpathar, Uttarakhand, 2023-2026.

4 Micro Earthquake Studies around Rattle HEP, J&K, NHPC LTD., Jammu (J&K), 2022-2024.

5 Site Specific Seismic Design Earthquake Parameter Studies for Somasila Pumped Storage Project, Ramapuram, SMEC India PVT LTD, Gurgaon, 2022-2025.

6 Site Specific Seismic Design Earthquake Parameter Studies for Jomori Hydro Electric Project 85 MV In Bhutan, Druk Green Power Corp. Bhutan, 2022-2025.

7 Site Specific Design Earthquake Parameters of Bardang HEP, Reolidugli HEP and Purthi HEP, Himachal Pradesh, Satluj Jal Vidhyut Nigam Ltd, Himachal Pradesh, 2022-2025

8 Site Specific Design Earthquake Parameters Study for Kishau Multipurose Project Distt, Dehradun, Kishau Corporation LTD, Dehradun, 2022-2025.

9 Site Specific Seismic Design Earthquake Parameters Study for Bhavali Pumped Storage Projects in the State of Maharashtra, JSW ENERGY LTD., (HP), 2022-2025.

10 Site Specific Seismic Design Response Spectrum for The Proposed Bridge over River Brahamputra Connecting Palasbari to Sualkuchi, SMEC India Pvt. Ltd, Gurgaon, 2022-2025

11 Site Specific Earthquake Design Parameter Studies for The Proposed Ultra Tech Cement Grinding Unit at Rajpura, Ultra Tech Cement Ltd., Rajpura, Patiala, 2022-2024

12 Seismological Studies Through Micro-Seismological Network Around Tehri Dam Region,

THDC India LTD., Rishikesh, 2022-2023

13 Micro-Earthquake Study Around Dugar HEP on River Chenab, Himachal Pradesh, NHPC LTD, Faridabad, 2021-2024

14 Site Specific Seismic Design Earthquake Parameters Study for Ayodhya Barrage Project Across Saryu (Ghaghra) River in Distt. Ayodhya, UP, Investigation and Planning Division, Gonda UP, 2021-2024

15 Site Specific Design Earthquake Parameters Study for Tehri Dam, UK, GM, Tehri Hydro Development Corporation Ltd., BY Pass Road Pragatipuram, Rishikesh, Uttarakhand, 2021-2024.

16 Site Specific Seismic Design Earthquake Parameters Study for Mahatma Gandhi Setu Bridge, Patna Bihar, M/S S.P. Singla Constructions Pvt. Ltd., Patna, Bihar, 2021-2024

17 Site Specific Seismic Design Earthquake Parameters Study For Noida Convention & Habital Center, Noida UP, New Okhla Industrial Development Authority, Noida, Gautam Budha Nagar UP, 2020-2024.

18 Site Specific Seismic Design Earthquake Parameters Study for costal Road project, Mumbai, Hindustan Construction Company Ltd., Mumbai, 2020-2024.

19 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, 2017-2018, Rs. 28.75 Lacs.

20 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

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:

1. Patent No 489653 - 2024: Tiltmeter with Liquid-Liquid Measuring, The Patent Office, Government of India, 27-12-2023.
2. Patent No 496293-2024: A Strong Ground Motion Sensor, The Patent Office, Government of India, 09-01-2024
3. Patent No 543662: A low cost Earthquake Early Warning Siren for public, 28-06-2024
4. Patent No 546838: A low cost Earthquake Early Warning System for Home/office, 31-07-2024

Patent Filed

1. CRN007: A method for improving the strength of pond ash deposits
2. CRN008: Method for improving the liquefaction resistance of pond ash deposits

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- 26

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 Naqash**, 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
10. **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
15. **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
23. **Priyanka Sharma**, Site characterization and liquefaction potential assessment in Indo-Gangetic Plains, 2020.
24. **C Lalla Wama**, Seismic hazard and risk assessment in NE India
25. **Deepak Jhangra**, Crustal velocity structure of North West Himalaya using Surface Wave Dispersion
26. **Deepak Rawat**, Seismological Monitoring of Landslide and Assessment in North-West Himalaya

Ongoing-10

26 **Rajni Modi**, Local Earthquake Tomography

27 **Arun Tyagi**, Landslide and earthquakes

28 **Mayuri,** Seismic Risk Assessment for Assam, North East India

29 **Mudit Srivastava,** Seismic site response and its implication on Seismic Hazard Assessment- A case study for Eastern Indogangetic Plains India

30 **Ritesh Lal Shaw,** Prediction of soil response and Generation of shake maps

31 **Anupa Chakraborty,** Landslide Detection using Seismological Data through Machine Learning

32 **Abhishek Kumar Pandey**, Quantification of Non-uniform Seismicity of the Himalaya

33 **Nupoor Gupta,** Earthquake Source modelling

34 **Shubhneet Sapnawat,** Deep Learning applications in Seismology and Fault Slip

35 **Sudhir Yadav,** Estimation of Quality factor for the Himalayan Region using Local Earthquakes

Master's Degree Supervision: 83

1. **Saurabh Mantri,** Seismic hazard assessment using BPT, 2026
2. **Asim Joseph,** Seismological studies of Kerala region, 2025
3. **Harsh Pratap Singh,** Geophysical attributes for warning systems, 2025
4. **Naveen Mudgil,** Ground motion prediction equations, 2024
5. **Md. Iliyas Khan,** Attenuation relationships for strong ground motion, 2024
6. **Avichal,** Analysis of Nepal Himalayan seismicity, 2023
7. **Subash Patel,** Probabilistic Seismic Hazard Assessment of VPHEP, Pipalkoti in Chamoli district of Uttarakhand. 2023
8. **Hardik Arora**, Scenario earthquake generation and risk estimation, 2022
9. **Aman Kumar**, Seismic Hazard Assessment in Case of Lystric Faults, 2022
10. **Mithlesh Sarkar**, Estimation of local site effects using Bihar Nepal isoseismals, 2021
11. **Monika Gautam**, Landslide studies in Garhwal Himalaya, 2020
12. **Satyajit Mitra**, Time frequency analysis of accelerograms, 2020
13. **Devendra Paliwal**, Comparetive analysis of landslide hazard zonation mapping, COEDMM, 2020
14. **Ayushmaan Sharma**, Conditional Probability Assessment in Himalayas, 2019
15. **Sahil Gulab Angural**, Near Field Ground Motion Effects in GMPEs, 2019
16. **Ashish Bahuguna**, Strong Ground Motion Analysis from Himalayas, 2019
17. **Deepak Kumar**, Seismic Risk assessment in Rural and Urban Areas, COEDMM, 2019
18. **Akanksha Agarwal**, Time Dependent Seismic Hazard Assessment, 2018
19. **Ali Ahmed Khan**, Reservoir Induced Seismicity (RIS) due to Tehri Dam, 2018
20. **Arun Tyagi**, Land Slide Hazard Zonation in Garhwal Himalaya, 2018
21. **C Lalla Wma Wma**, Seismic Hazard and Risk Assessment for NE India, 2018
22. **Rinku**, Site Amplification and Attenuation Studies for Himalayan Region, 2018
23. **Ritesh Kumar Rai**, Site Amplification Case Study, 2018
24. **Vivek Singh Yadav**, Induced Seismicity, 2018
25. **Vivek Bhardwaj**, Seismic hazard assessment for Uttarakhand, 2018
26. **Singh Jalesh Santosh**, Estimation of bed rock depth using GPR, 2017
27. **Harshvardhan Singh**, Scaling Laws in Himalayas, 2017
28. **Kuldip Khichar**, Site Amplification & Attenuation Studies for Garwal-Kumaun Himalaya & amp; Delhi Region, 2017

29. **Rishi Grewal**, Seismic Risk Assessment of Srinagar city, Jammu and Kashmir, COEDMM, 2017
30. **Gautam Kumar**, Estimation of bed rock using GPR, 2016
31. **Ashish Kumar Verma**, Generation of Shake maps, 2016
32. **Rahul Kumar**, Seismic hazard analysis with moment release constraint in Kumaoun and Garhwal region, 2016
33. **Saurabh Kumar Mangal**, Evaluation of dynamic response of deep soils, 2016
34. **Ankita Prasun**, Seismic Risk Assessment due to Scenario Earthquake – A case study for Bihar Nepal 1934 Earthquake, 2016
35. **Ishan Roy**, Methodology for generation of Shakemaps for Delhi region, 2015
36. **Deepika Sayana**, Deep soil effect, 2015
37. **Phibe Khalko**, Seismic Hazard assessment, 2015
38. **Shivani Chauhan**, Damage Scinario under great earthquake – A case study of 1934 Bihar Nepal Earthquake, COEDMM, 2015
39. **Shivani Singh**, Effect of deep soils on strong ground motion, 2014
40. **Vaddi Monica**, Seismic Hazard estimation for south India, 2014
41. **Smita Singh**, Ground motion simulation using modified semi empirical methodology, 2014
42. **Mod Ahemad**, Amplification of strong ground motion due to deep soils, 2013
43. **Akhilesh Singh**, Seismic Hazard and Risk Assessment for Indo-Gangetic plains, 2013
44. **Chibi Rajram**, Earthquake Early Warning System for North India, 2013
45. **Rebecca RC**, Evaluation of strong ground motion prediction equations, 2012
46. **Nitesh Patel**, Earthquake Early warning system, 2012
47. **Saurabh Vijay**, Advances in SAR interferometry, 2012
48. **Harish Shinde**, Seismic Microzonation of Chandigarh City, 2011
49. **Manu Mohan**, A Neural Network Approach for Earthquake Early Warning System, 2011
50. **Amarjeet Birajdar**, Attenuation relationship for spectral displacement for Himalayan region, 2011
51. **Abhishek**, Integrated Geo exploration over Solani Knee band, NW Himalaya, 2010
52. **Venu Gopal**, Comparison of site specific PGA using neural networks and regression models, 2010
53. **A. Panchal**, Determination of design ground motion parameters for displacement based design, 2010
54. **Mansi Kulkarni**, Seismic Hazard Assessment using Non Poissonian Models, 2010
55. **Jainish Kotadia**, Development of spectral attenuation relationship for Indian region, 2007
56. **Shiva Kumar**, Application of artificial Neural Network for prediction of spectral acceleration in site specific, 2006
57. **Ravindra Golia**, Estimation of cumulative and conditional probabilities in Himalayas, 2006
58. **Anshul Kumar**, Seismic microzonation of rural areas, 2005
59. **Prashant Ambulkar**, Development of methodology for insurance tariff against earthquakes, 2005
60. **Shivani Sharma**, Reflection of seismic waves from non-welded interfaces, 2005
61. **Murugavel Raja**, Automatic Phase Picking of Seismic Signals using ANN, 2005
62. **Sonal Gupta**, Dem generation from SAR interferometry, 2005
63. **A. Ahemad**, Development of Automatic Phase pickers for earthquakes, 2004
64. **Atanu Bhattacharya**, Estimation of strong ground motion in Himalayas using strong ground motion and SRR data, 2004
65. **J. Niwas**, Development of world wide GIS earthquake based system, 2003
66. **Pratim Sil**, SAR interferrometry studies in Jharia Coal fields, 2003
67. **G. C. Joshi**, Seismic hazard analysis and risk computation, 2002
68. **K. Samba S Rao**, Seismic microzonation of Delhi, 2002
69. **Satendra Saini**, Development of attenuation relationship for Himalayan region using Indian Strong motion array data, 2002

70. **S. K. Gupta**, Remote sensing application in seismic hazard studies, 2001
71. **M. Khan**, Seismic hazard Analysis using GIS, 2001
72. **R. G. K. Nath**, Development of Attenuation relationship for Indian Region, 2000
73. **Venkata Raju**, Seismic hazard Analysis using Artificial Neural network, 2000
74. **S. Panda**, Design of an 10-storyed building in NE India at location C, Maharashtra, 1999
75. **R. G. K. Nath**, Design of an 10-storyed building in NE India at location B, Mehghalaya, 1999
76. **Amit Sahu**, Design of an 10-storyed building in NE India at location A, Assam, 1998
77. **Umakant Singh**, Design of an 8-storyed reinforced concrete office building in NE India, 1998
78. **R. Gautam**, Background noise characteristics of ground using broad band seismometer, 1998
79. **Kiran Pal**, Fabrication of interface unit between seismometer and recorder, 1998
80. **Kh. Ibophisak Singh**, Seismological studies and design of Earth and Rockfill dam, 1995
81. **R. Verma**, Determination of coda magnitude of local earthquakes, 1991
82. **A Ghosh**, Automatic earthquake recognition, 1990
83. **Pravesh Gupta**, Design and Fabrication of an instrument for the measurement of ground conductivity, 1989

Conference and short term courses Organised

- **Coordinator :** Seismic Hazard mapping of Dams, ICED, March, 2025
- **Chairman :** A New Perspective on Natural Hazard, Risk & Insurance, *A workshop on challenges and innovations, May 2018*
- **Co-Chairman** : 6th International Conference on Recent Advances in Geotechnical Earthquake Engineering, 2016, Greater Noida
- **Co-Chairman** : 7th International Conference on Recent Advances 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-Australian (2025-2028).
- Indo-Norway-Brazilian ((2023-2028).
- 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:

- Sitharam, T.G., S. Kolathayar and M. L. Sharma, Seismic Hazards and Risk - Select proceedings of 7th ICRAGEE, 2020, 282
- M.L. Sharma, Manish Shrikhnade and H. R. Wason, Advances in Indian Earthquake Engineering and Seismology: Contributions in Honour of Jai Krishna, Springer, 2018.
- Proceedings, 15th Symposium on Earthquake Engineering – 15SEE, 2014, Vol I, pp 1-438, Published by Department of Earthquake Engineering, IIT Roorkee.
- Proceedings, 15th Symposium on Earthquake Engineering – 15SEE, 2014, Vol II, pp 439-1135, Published by Department of Earthquake Engineering, IIT Roorkee.
- Proceedings, 14th Symposium on Earthquake Engineering- 14SEE, Vol I, 2010,pp1-690 , Published by Department of Earthquake Engineering, IIT Roorkee
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- Proceedings, 13th Symposium on Earthquake Engineering – 13SEE, Vol I, 2006, pp 1-616, Published by Department of Earthquake Engineering, IIT Roorkee.
- Proceedings, 13th Symposium on Earthquake Engineering- 13SEE, Vol II, 2006, 617-1468, Published by Department of Earthquake Engineering, IIT Roorkee
- Proceedings, 12th Symposium on Earthquake Engineering – 12SEE, 2004, Vol I, pp 1-713, Published by Department of Earthquake Engineering, IIT Roorkee.
- Proceedings, 12th Symposium on Earthquake Engineering- 12SEE, 2004, Vol II, 714-1587, Published by Department of Earthquake Engineering, IIT Roorkee.
- A report on the Chamoli Earthquake of March 29, 1999, 2000, Published by the Department of Earthquake Engineering, University of Roorkee.

Chapters in Books

1. Chhavi Chaudhari, ML Sharma, Shusil Gupta (2024), Earthquake Occurrence models, Recent Developments in Earthquake Seismology: Present and Future of Seismological Analysis, 1-13, Springer International Publishing.

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, 47-63, Springer International Publishing.
3. Mukat Lal Sharma and Deepak Rawat (2023).Seismic Signal Analysis for Landslide: Detection and Classification, Natural Geo-disaster and Resiliency, Springer, CREST, 335-346.
4. 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.
5. 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.
6. 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.
7. Ritu Raj Nath, shilpa Pal and M. L. Sharma (2022). Use of Probabilistically Generated Scenario Earthquakes in Landslide Hazard Zonation : A Semi-qualitative Approach, 247-274.
8. Vaneeta Devi, M.L. Sharma (2019). Advances in Extraction of Signal From Ground Motion Time Histories Using Time-Frequency Analysis, Recent Challenges and Advances in Geotechnical Earthquake Engineering, 1-30.
9. S. Gupta, M. K. Arora, M. L. Sharma (2006). Surface displacement studies using differential SAR interferometry: an overview, Disaster forewarning diagnostic methods and management, Kogan, Felix; Habib, Shahid ;Hegde, V. S.Matsuoka, Masashi, SPIE, ISBN 0819465194
10. Sharma M. L. (2019). Engineering Seismology, Advances in Indian Earthquake Engineering and seismology, Springer.
11. Wason, H.R., Ranjit Das and M. L. Sharma (2019). Regression Relations for Magnitude Conversion for the Indian Region, Advances in Indian Earthquake Engineering and seismology, Springer.

Educational Movies:

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

Recent publications:

Journals – 117

1. Kumar, Deepak , G. Suresh, M. L. Sharma, Siddharth Dey, S. C. Gupta (2025).Lithospheric structure beneath the Upper Indus Basin and its adjacent regions from inversion of surface wave dispersion, Physics of the Earth and Planetary Interiors, 362, 107345.
2. Modi, R., M. L. Sharma and S Mukhopadhyay (2025).One-dimensional crustal velocity structure for Tehri, Garhwal Himalaya and its implications in improved locations of earthquake hypocentres, Journal of Earth System Science, 134(2), 80.
3. Srivastava, Mudit and M. L. Sharma (2025). Site Characterization of Southern Bihar Region Employing Topographic Slope as a Proxy: Implication to Seismic Scenario, Journal of Earth System Science (Accepted).
4. Borah, M., M. L. Sharma and R.N. Dubey (2025). Assessment of Seismic Hazard Incorporating Site-Specific Study for Assam, North-East India, Journal of Earth System Science(Accepted).
5. Tyagi, A., M. L. Sharma and J. Das (2024). Impact of External Triggering Factors on Landslide Hazard in Garhwal Himalayas, Indian Geotechnical Journal, 1-17.
6. Lallawmawma, C., J.D. Das, M.L. Sharma (2024). Evaluating and comparing seismic hazard parameters for Northeast India: a comprehensive study, Arabian Journal of Geosciences, 17(12), 1-16.
7. Kumar, Deepak, Suresh Gaddale, M. L. Sharma and S. C. Gupta(2024). Local Magnitude Scale and 1-D Velocity Model for Central Northern India, Annals of Geophysics, 67(1), SE110. https://doi.org/10.4401/ag-9072
8. Kumar, Pankaj, Kamal, **M. L. Sharma**, R. S. Jakka and Pratibha (2024). Uttarakhand State Earthquake Early Warning System: A Case Study of the Himalayan Environment. Sensors, 24(11), 3272. doi: 10.3390/s24113272.
9. **Sharma, M. L.** and Deepak Rawat(2024). Seismic Signal Analysis for Landslide: Detection and Classification Check for updates. Natural Geo-disasters and Resiliency: Select Proceedings of CREST 2023, 445,335.
10. Rawat, Deepak, **M. L. Sharma**, Divyesh Varade, Roshan Kumar, Debi Prasanna Kanungo, Rayees Ahmed, S. C. Gupta, Hemant Singh and Nishant Saxena (2024). Early Warning Potential of Regional Seismic Network: Seismic Assessment of One of the Precursors of Chamoli 2021 Disaster, Earth Systems and Environment, 8, 85-104. Doi: 10.1007/s41748-023-00364-y
11. Kumar Pankaj, Kamal, **M. L. Sharma**, R.S. Jakka, Pratibha, a. Kumar, G. C. Joshi and P. Rautela (2024). Successful Alert Issuance with Sufficient Lead Time by Uttarakhand State Earthquake Early Warning System: Case Study of Nepal Earthquakes, Journal of The Geological Society of India, 99(3), 303-310. DOI10.1007/s12594-023-2311-3
12. Lallawmawma, C., M.L. Sharma, J.D. Das (2023). Probabilistic seismic hazard and risk assessment of Mizoram, North East India, Natural Hazards Research. 3(3), 447-463. DOI: 10.1016/j.nhres.2023.06.008

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14. Sharma, Saurabh, Anand Joshi, Che-Min Lin, Chun-Hsiang Kuo, Kuo-Liang Wen, Sandeep Singh, **M. L. Sharma**, Mohit Pandey and Jyoti Singh (2023). Modeling of rupture using strong motion generation area: a case study of Hualien earthquake (Mw 6.1) occurred on April 18, 2019, Acta Geophysica, Vol 71(4), 1-28. DOI: 10.1007/s11600-022-00893-6
15. Rathore, Govind, Ashok Kumar, R.S. Jakka and **M. L. Sharma** (2023). Design and implementation of earthquake early warning dissemination mobile app for Uttarakhand (India), Journal of Seismology, 27(1):203–217. DOI10.1007/s10950-022-10124-6
16. Nath, Ritu Raj, , Naveen Pareek, **Mukat Lal Sharma** (2022). Implications and inclusion of size-dependent scenario earthquakes on landslide hazard zonation: A case study of the Indian Himalayas, CATENA, 212(4), 1-12, DOI: 10.1016/j.catena.2022.106027
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23. Kanaujia, Joytima, S. Mitra, S.C. Gupta and **M.L. Sharma** (2019). Crustal anisotropy from shear wave splitting of local earthquakes in the Garhwal lesser Himalaya, Geophysical Journal International, 219(3), 2013-2033. DOI10.1093/gji/ggz404
24. Bajaj, S. and **M. L. Sharma** (2019). Modeling Earthquake Recurrence in the Himalayan Seismic Belt Using Time-Dependent Stochastic Models: Implications for Future Seismic Hazards, Pure and Applied Geophysics, 176(1), 5261-5278. DOI:10.1007/s00024-019-02270-9
25. Das, R., **M. L. Sharma**, H. R. Wason, D. Chaudhary, G. Gonzalez (2019). A Seismic Moment Magnitude Scale, Bulletin of Seismological Society of America,109(4), 1542-1555. DOI: 10.1785/0120180338

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28. Choudhary, Chhavi and **M. L. Sharma** (2018). Global strain rates in western to central Himalayas and their implications in seismic hazard assessment, Natural Hazards, 94(3), 1211-1224. DOI: 10.1007/s11069-018-3467-9
29. Kumari, Neha, I.D. Gupta, **M.L. Sharma** (2018). Synthesizing Nonstationary Earthquake Ground Motion via Empirically Simulated Equivalent Group Velocity Dispersion Curves for Western Himalayan Region, Bulletin of the Seismological Society of America, 108(6), 3469-3487. DOI10.1785/0120170387
30. Bhardwaj, R. and **M. L. Sharma** (2018) Lead time for cities of Northern India by using multiparameter EEW algorithm, International journal of Geophysics, Vol(2018), 1-8. DOI: 10.1155/2018/9086205
31. Nath, R.R., Gautam Kumar, **M. L. Sharma** and S.C. Gupta (2018) Estimation of Bedrock Depth for a Part of Garhwal Himalayas Using Two Different Geophysical Techniques, Geoscience letters, 5(1), 1-9. DOI10.1186/s40562-018-0108-9
32. Lal, Sohan, A Joshi, Monu Tomer, Parveen Kumar, Chun-Hsiang Kuo, Che-Min Lin, Kuo-Liang Wen, **M.L. Sharma** (2018). Modeling of the strong ground motion of 25th April 2015 Nepal earthquake using modified semi-empirical technique, Acta Geophysica, 66(4), 461-477. DOI10.1007/s11600-018-0140-3
33. Das, Ranjit, H.R. Wason, Gabriel Gonzalez, **M.L. Sharma,** Deepankar Choudhury, Conrad Lindholm, Narayan Roy, Pablo Salazar (2018). Earthquake Magnitude Conversion Problem, Bulletin of the Seismological Society of America, 108(4), 1995-2007. DOI10.1785/0120170157
34. Das, Ranjit, H. R. Wason, **M. L. Sharma** and G. Gonzalez (2017) Reply to "Comment on 'Unbiased Estimation of Moment Magnitude from Body- and Surface-Wave Magnitudes' by R. Das, H. R. Wason, and M. L. Sharma and 'Comparative Analysis of Regression Methods Used for Seismic Magnitude Conversions' by P. Gasperini, B. Lolli, and S. Castellaro" by J. Pujol, Bulletin of the Seismological Society of America, 108(1), 540-547. DOI10.1785/0120160315
35. Chaudhary, C. and **M. L. Sharma** (2017) Probabilistic Models for Earthquakes with Large Return Periods in Himalaya Region, Pure and Applied Geophysics, 174(136), 4313-4327. DOI: 10.1007/s00024-017-1667-y
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38. Das, Ranjit, **M. L. Sharma** and H. R. Wason (2016) Probabilistic Seismic Hazard Assessment for Northeast India Region, Pure and Applied Geophysics, 173(8), 2653-2670. DOI10.1007/s00024-016-1333-9
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41. Bhardwaj, Rakhi, **M. L. Sharma,** Ashok Kumar (2015) Multi-parameter algorithm for Earthquake Early Warning, Geomatics, Natural Hazards and Risk, 7(4), 1242-1264. DOI: 10.1080/19475705.2015.1069409
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Summary:

Patent	**04**
Major Research Projects	**28**
Major Consultancy Projects	**14**
Awards	**03**
Ph.d. Guided	Completed : **25** Ongoing : **11**
M.Tech	**80**
Conference Organised	**08**
Books Authored	**11**
Chapters in Book	**10**
Education Films	**09**
Publications	Journals: **117** Conferences/Workshop/Seminars: **200**
Technical Reports	**554**

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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 Geopghysical Union.