CURRICULUM VITAE

NAME : **DR. SANDEEP SINGH**

PRESENT ADDRESS : DEPARTMENT OF EARTH SCIENCES
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DATE OF BIRTH: **31ST JULY 1966**

ACADEMIC VITAE

HIGH SCHOOL	1980	UP BOARD
INTERMEDIATE SCIENCES	1982	UP BOARD
BACHELOR OF SCIENCES	1984	LUCKNOW UNIVERSITY
MASTERS OF TECHNOLOGY	1987	APPLIED GEOLOGY – UNIVERSITY OF ROORKEE
PH.D.	1994	HIMALAYAN TECTONICS – UNIVERSITY OF ROORKEE

EMPLOYMENT EXPERIENCE:

Research Scientist "B"	March 8, 1989 to April 14, 1996	University of Roorkee
Assistant Professor	April 15, 1996 to January 26, 2006	University of Roorkee/ Indian Institute of Technology Roorkee
Associate Professor	January 27, 2006 to November 9, 2009	Indian Institute of Technology Roorkee
Professor	November 9, 2009 onward	Indian Institute of Technology Roorkee
Professor (HAG)	January 1, 2019 onward	Indian Institute of Technology Roorkee

RESEARCH INTERESTS:

Himalayan Tectonics, Himalayan Migmatites, Himalayan GranitoidsGeochronology, Isotope Geology, Exhumation processes, Sr-isotopes in the water system, Relationship of Shear wave velocity and Rock type

PUBLICATIONS:

	Published	**Accepted**
Research Papers	96	
Books	13	
Book Chapters	08	
Conference Papers	140	
Popular Articles	08	

TOTAL Citation – 3149

https://scholar.google.com/citations?view_op=list_works&hl=en&user=LxU3I5cAAAAJ

AWARDS/PRIZES: Doctoral Fellowship to Sweden, 1990-1991
1994 Khosala Annual Research Award (Silver Medal)

BOYSCAST Fellow, 2000-2001
INSA-DFG Exchange Fellowship to Germany 2002-2003
Star Performer - IITRoorkee year 2003-2004
Star Performer - IITRoorkee year 2004-2005
First Prof. H.H. Read Gold Medal, 2005
Star Performaer – IITRoorkee year 2005-2006

ADMINISTRATIVE EXPERIENCE AT THE INSTITUTE

- **Head,** Department of Earth Sciences, IIT Roorkee (Feb 2025 – onward)
- **Joint Faculty,** International Center of Excellence for Dams (ICED), IIT Roorkee (15 July 2024 – onward)
- **Dean, Alumni Affairs and International Relations** (May 2014 – June 2017)
- **Coordinator & PI**, Center for Himalayan Studies (Nov 2015 onward)
- **Local Coordinator of IITR,** GIAN (Global Initiative of Academic Network) program of MHRD
- **Professor-In-Charge,** Security (Jan 2011 to May 2014)
- **Dy. Chief Sports Advisor** (Jan 2011 – March 2013)
- **Professor-In-Charge,** Institute Transportation Cell (May 2004 – Dec 2010)
- **Member**, of the Interaction committee for developing **Vision Document IIT Roorkee 2030**
- **Member,** IIT Roorkee Senate (Highest Academic Body of the Institute) 2007 onward
- **Member – School Management Committee,** *Adarsh Bal Niketan, IIT Roorkee Campus, Roorkee* (2006-2009)
- **Member,** Core-group, Intellectual Property Right (IPR) Cell, IIT Roorkee.
- **Dy. Faculty Advisor,** THOMSO-2007, Annual Youth Festival, IIT Roorkee
- **Dy. Chief Advisor**, Students Club, IIT Roorkee (2007-2008)
- **Staff Advisor Hockey,** IIT Roorkee Sports Association (2001-2009)
- **Staff Advisor Football,** IIT Roorkee Sports Association (2009 - 2010)
- **Officer-In-Charge,** Departmental Placement Cell, IIT Roorkee
- **Executive member,** Institute Placement Committee, IIT Roorkee

MEMBERSHIP/FELLOWSHIP OF PROFESSIONAL SOCIETIES:

- **Life Member (LM 2000)** Indian Society of Earthquake Technology from 2024
- **Member** Tunneling Association of India (2024)
- **Life Fellow (LF-0621)** Indian Geotechnical Society from 2022
- **Life Member** (LM-569) Indian Society for Mass Spectrometry (ISMAS)
- **Member IASTG,** (International Association of Structural/ Tectonic Geologists) Membership no. **IA 975.**
- **Life Member (L1131) Geological Society of India,** Bangalore
- **Life Member, Mineralogical Society of India**, Mysore (LM 194)
- **Life Member, Himalayan Geology,** WIHG, Dehradun
- **Life Member, Association of petroleum Geologists,** Dehradun
- **Life Member Paleontological Society of India,** Lucknow
- **Life Member, Indian Geophysical Union,** Hyderabad

- **Member AGID,** (Association of GeoScientist for International Development).

OTHER ACTIVITIES/RESPONSIBILITIES:

- **Member,** Board of Studies, Department of Geology, University of Ladakh
- **Lead Faculty,** Fieldworkshop for the **NATRISK (**an international partnership for enhancing risk management and resilience to natural hazards through collaboration in research, education, and innovation that connects expertise from Brazil, India, and Norway) team in the Himalayas
- **Member,** Technical Programme Committee (TPC) of of Advanced Research Grant(ARG)_Earth & Atmospheric Sciences Vertical at Anushandhan National Research Foundation (ANRF)
- **Executive Director (Honorary),** Sri Trilochan Upreti Smriti Himalayi Shodh Sansthan, Chormaniya, Pithoragarh (Independently managed Under Dev Bhumi Vichar Manch – a Pragya Pravah's Uttrakhand Unit)
- **Member,** Scientific Commiitee, 37th Himalayan Karakoram Tibet Workshop – 2025, Italy
- **Advisory Member,** "Group 2: Seismic Source Modeling" for the National Seismic Hazard Mapping. July 2024 onward
- **Member of Editorial Board,** *Discover Minerals*, Springer Nature Publication. 2024 onward
- **President, Advisory Commiitee (Honorary),** Sri Trilochan Upreti Smriti Himalayi Shodh Sansthan, Chormaniya, Pithoragarh (Independently managed Under Dev Bhumi Vichar Manch – a Pragya Pravah's Uttrakhand Unit)
- **Member of International Editorial Board,** *Geopersia*¸ Peer reviewed journal in the field of Geological Sciences published biannually by the College of Science, University of Tehran, Iran.
- **Associate Editor,** *Journal of Geological Society of India,* Springer publication. 2019 – 2023.
- **AICTE representative** on the **Executive Council,** Dr. A. P. J. Abdul Kalam Technical University, Uttar Praesh. March 2022-2024
- **Member, Finance Committee,** Dr. A. P. J. Abdul Kalam Technical University, Uttar Praesh. March 2022-2024
- **University Nominee (AKTU, Lucknow), Governing Body** of S D College of Engineering and Techology, Mzaffarnagar. March 2022 onward
- **Member,** Board of studies (BoS), Department of Geology, HNB Garhwal University, Srinagar, Uttrakhand. March 2022 onward
- **Member, External Expert for** Departmental Academic Committee (DAC) and the Departmental Visiting Committee (DVC) of Department of Applied Geology, NIT Raipur.
- **Member, Advisory committee,** Jharkhand University of Technology, Ranchi from March 2021 onward
- **Member, Dam Safety Review Panel (DSRP),** Uttrakhand Jal Vidhut Nigam, Uttrakahnd, India
- **Involved in National Building Projects;** Rishikesh – KaranPrayag BG Railway

lines; Bhanupalli-Bilaspur BG Railway Lines; Chardham BG Railway Lines and Bilaspur-Manali-Leh BG Railway Lines.

- **Member, Team of Prof. Vijay Raghvan, Principal Scientific Advisor, Government of India** for Roundtable on Indo-Swiss Mountain research and on water conservation, and possible avenues for further collaborations at University of Bern, Switzerland, 4th September 2019.
- **Member, Scientific Committee,** Himalayan Karakoram Tibet Workshop 2018, Laussane, Switzerland
- **Expert** for Establishment of Centre for Transport Science & Technology at Central University of Jharkhand, Ranchi, India
- **Member, Technical Task Force** for Risk Assessment, Slope Stabilization, River Morphology and River Training, Govt. of Uttrakhand, (2015-ongoing)
- **Member, Executive Committee** for implementation of National Green Tribunal's directive, Govt. of Uttrakhand (2014-2015)
- **Member, National Working Group,** IGCP-589: Development of Asian Tethyn Realm (2012-2016)
- **Member Advisory Committee (SAP-CAS 2012-16) in Geology** of Punjab University, Chandigarh (2012-2016)
- **Member, Expert Committee of AICTE** (All India council of Technical Education) New Delhi
- **Series Editor,** Text Book Series of 14 books for undergraduate students in Earth Sciences, Published from Geological Society of India,
- **Core Group member,** MeLT (Mobile e-learning Terminals) project using VSAT data coonectivity for the students living in remote areas.
- **Member,** TIFAC programme (Department of Science and Technology, New Delhi) of making vision document 2035 (as an expert for the Geothermal Energy Resources)
- **Member – Expert Pannel,** *Development Research Committee* of Research Council for culture and Society of **Academy of Finland**.
- **Secretary, *Commission on Granite***, *International Association of Volcanology and Chemistry of the Earth's Interior (IAVCEI)*, An Association of the **International Union of Geodesy and Geophysics**, 2001-till date.
- **Member of Editorial Board,** *Journal of Virtual Explorer*, Electronic Journal published from Monash University Australia, ISSN numbers: 1441-8126 (for the printed journal), 1441-8142 (for the online journal) and 1441 8134 (for the CD-ROM's journal).
- **Member of Editorial Board,** *International Journal of Advancement in Earth and Environmental Sciences (IJAEES)*, an international, multidisciplinary, peer reviewed, open access journal published quarterly under the aegis of IROSSS (International Research Organization of Sciences and Social Sciences)
- **Guest Editor,** *19th Himalayan-Karakoram Workshop volume* to be published in **Journal of Asian Earth Sciences** (Elsevier Publication), **vol. 29(2-3), Feb 2007**
- **Regional Editor,** *Himalayan Notes*, published from Department of Geology, Box 871404, Arizona State University, Tempe, AZ 85287-1404, USA (closed now).
- **Involved** in running and maintaining of National Facility on Geochronology/Isotope Geology at Indian Institute of Technology

- **Member – School Management Committee,** *Adarsh Bal Niketan, IITRoorkee Campus, Roorkee* (2006 - 2009)
- **Involved** in Himalayan Geotransect Programme (HIMPROBE)
- **Organized** a workshop on Himalayan Tectonics (the HIMPROBE Result) in October 2003
- **Co-P.I.** for the core team Establishing a National Facility for ^{40}Ar-^{39}Ar Geo-thermochronology at the Indian Institute of Technology (IIT) Bombay
- **Co-chaired** a session on Eastern Himalaya –II in 17th International Workshop on Electromagnetic Induction in the Earth (EM India 2004) at NGRI, Hyderabad, India, October 2004.
- **Co-Chaired** a session on Central Transects in National Workshop on Indian Geotransect (WinGeo-2004) at WIHG, Dehradun, India, November 2004.
- **Convenor,** National Conference on Geochemical and Isotopic Evolution of Continental Crust, IITRoorkee, November 2005.
- **Organizing Secretary,** 23rd International Himalayan-Karakoram-Tibet Workshop, Leh, India, 8-18 August 2008.
- **Organizing Secretary,** 3rd Uttrakhand State Science and Technology Congress, Roorkee, India, 10-11 November 2008
- **Group Leader,** Ladakh-Karakoram Expedition 2007 sponsored by the Department of Science and Technology, New Delhi
- **Group Leader,** 23rd Himalayan-Karakoram-Tibet post-workshop field excursion to Tso-Morari and Pangon-Tso area, 11-18 August, 2008
- **Guest Faculty,** Advanced Training programme on Magmatic and Allied Processes" Department of Geology, Kumaoun University, Nainital (28 Sep – 11 Oct. 2007)
- **Programme Coordinator,** Computer training programme for operation of Janadhar e-community Information and Service Centres (JeCISC) in Uttrakhand, Center for Continuing Education, March 3-7, 2008

STUDENT SUPERVISED FOR PH.D.

1. **Rajeev Kumar** (2005), ***Tectonics, Geochemistry and Geochronology of the Ladakh Batholith, Trans-Himalaya.***

2. **Th. Nikunj Bihari Singha** (2007), ***Migmatites of Higher Himalayan Crystallines: their role in Collision Tectonics***

3. **James Pabem** (2010), ***Timing of Geodynamics processes in Arunanchal Himalayan using Rb-Sr and Fission Track ages.***

4. **Priynka Singh** (2017) ***Sr isotope, major and trace element mobility of Central Ganga Alluvial Plain***

5. **Rimpi Dhiman** (2019) ***U-Pb geochronology and geochemical evolution of Dhauladhar and Dalhousie graites in Himachal Himalayas***

6. **Arun Prasath R. (**2019) ***Seismotectonics of Garhwal Himalaya between Alakhnanda and Yamuna valleys***

7. **Anamika Sahu (**2024) ***Petrophysical characteristic of rocks from Kumaun and Garhwal Area***

8. **Piyush Gupta** (2024) ***Genetic characterization of Basalts from Western offshore basins of India***

9. **Saurabh Singhal** (2025) ***"Development of the protocols for dating with various isotopic measurements".***

10. **Aman Kumar Kushaha (**on going) ***Melt migration within Migmatite zone of Higher Himalayn Crystallines, Indian Himalaya.***

STUDENT SUPERVISED FOR POST-GRADUATE DISSERTATION

1. **Sanjeev Bhoi** (M.Tech. 2000), ***Landslide Hazard Zonation along a part of the Beas River Valley using Remote Sensing and GIS*** (With Dr. A.K. Awasthi and Dr. Champati Ray, IARS, Dehradun)

2. **Arnindam Chakraborty** (M.Tech. 2000), (With Dr. A.K. Awasthi and Dr. Sudhir Kumar, NIH, Roorkee)

3. **Biswajayee A. Patra** (M.Tech. 2002), ***Rb-Sr mineral ages of Trans-Himalayan granites, Ladakh Himalaya*** (With Dr. A.K. Jain and Dr. Anil R. Vijan, KDMIPE, Dehradun)

4. **Rajnish Ranjan** (M.Tech. 2002), ***Geochemistry and Geochronology of the Pan-African Magmatism, NW Himalaya and its Tectonic Implication***(With Dr. A.K. Jain and Dr. Anil R. Vijan, KDMIPE, Dehradun)

5. **Iswar Chand Das** (M. Sc. 2003), ***Rb-Sr Dating of Jispa Granite, NW Himalaya***

6. **Ajay Kumar Arya** (M.Tech. 2004), ***Sr isotopic studies along Bhagirathi Valley***

7. **Manish Bisht** (M.Tech. 2004), ***Rb-Sr ages along Bhagirathi Valley***

8. **Babita Choudary** (M.Sc., 2004) "Rb-Sr"mineral ages along the Beas Valley area (India) to constrain the fold controlled exhumation and cooling rate"

9. **Satya Prakash Mohanty** (M. Sc. 2004), ***Rb-Sr mineral ages along Beas Valley***

10. **Dibya Prakash Dahl** (M.Tech., 2006), ***Sm-Nd terrain characterization of Subathu Group sediments***

11. **Swagata Dey** (M.Sc., 2006), ***Source rock characterization of lower Cenozoic Formations, Sub-Himalaya, using Sr and Nd isotopes.*** (with Dr. A.K. Jain)

12. **Vipin Paliwal (**M.Tech. 2007), **Sr isotopic studies of Gomti River**

13. **Kaushal Singh Barfal** (M.Tech. 2007), ***Structures and tectonics of the Higher Himalayan Crsytallines – Gori and Dhauliganga Valleys.*** (with Dr. A.K. Jain)

14. **Rahul R. (**M.Tech. 2007), ***Rb-Sr mineral ages from Higher Himalayan Crsytallines, Goriganga valley, Kumaoun Himalaya.*** (with Dr. A.K. Jain)

15. **Jaganath Mukherjee** (M.Sc., 2007), ***Rb-Sr dating of Biotite granite from Leo-Pargil Dome.***

16. **Richong Koirang (**M.Tech., 2008**),** ***Sr-Nd isotopic studies along Subansiri Valley, Arunanchal Pradesh.*** (with Dr. A.K. Jain)

17. **GeetuMol K.G. (**M.Sc.**,** 2008), ***Sr isotopic studies of sediments from Gomti River Basin***

18. **Avinash Gupta (**M. Sc., 2008), ***Geochemistry of granitoids from Karakoram Shear Zone***

19. **Smriti Jain (**M.Sc., 2008), ***Tso Morari Crystallines: Geochemical constraints on protolith of eclogites and gneisses***

20. **Sarvesh Vikram Bisen (**M. Tech. 2009), ***Geochemical behavior of Shyok Volcanics, Karakoram Mountains, Northern Ladakh Himalaya***

21. **Chandrashekhar** (M.Tech. 2009), ***Sr-Nd isotopic study of Shyok Volcanics, Karakoram Mountains, Northern Ladakh Himalaya***

22. **Ruchi Basak** (M. Tech., 2009), ***Sr isotopic study of Ramnagar cliff within Ganga Alluvial Plain***

23. **Sadab Raja** (M.Tech., 2009), ***Sr-Nd isotopic study of Subathu and Dagsahi Group sediments***

24. **Alekha Naik (**M. Sc., 2010), ***Seasonal variation of Sr isotopic study of Ganga River at Rishikesh and Gazipur***

25. **Pravin Kumar** (M.Sc., 2010), ***Seasonal variation of Sr Isotope study of Gomati River water and ground water at Chandawak, District Jaunpur***

26. **Anay Subhas Shendey** (M.Sc., 2011), ***Petrography and isotope geochemistry of Lonar Impact Crater, Mahrashtra.***

27. **Anurag Srivastava (**M. Sc., 2011), ***Sr- analysis of groundwater along Gomti River, Ganga Alluvial Plain (GAP)***

28. **Ammu Mol, P. C.** (M. Sc., 2011), ***Sr isotopic analysis of gomti and Ganga Rivers from Ganga Alluvial Plain.***

29. ***Yogpurna Rout*** (M.Sc., 2012), ***Sr Isotopic analysis of Rain water of Lucknow.***

30. **Binamra Pushpalak** (M. Tech., 2012) ***Rb-Sr Mineral ages of Higher Himalayan Crystallines, Bhagirathi Valley, Garhwal Himalaya.***

31. **Rajesh Pandey** (M. Tech., 2012) ***Geochemical and geochronological analysis in Lesser and Higher Himalayan rocks, Eastern and Central Bhutan***

32. **Thothadi Babji (**ID M. Tech., 2013) ***Sr-Nd isotopic signatures of Paleocene-Eocene boundary from ODP site 1138A, Kerguelen Plateau, Southern Ocean***

33. **Rohit Gupta** (ID M. Tech., 2013) ***Sr-Nd isotopic signatures of Early Paleocene from ODP site 1138A, Kerguelen Plateau, Southern Ocean***

34. **Puneet Seth (**ID M.Tech. 2014) ***Defining the Main Central Thrust (MCT) at Helang – structural mapping along the Alaknanda Valley***

35. **Mrinal Shreshtha (**ID M.Tech. 2014) ***The South Tibetan Detachment System: Its Shear Sense Indicators and their significance near Malari, Dhauli Ganga Valley section, Uttarakhand***

36. **Lawrence Kanyan** (ID M.Tech. 2014) ***Small-scale ductile structures of the Higher Himalayan Crystallines (HHC) along the Vaikrita Thrust, Dhauli Ganga Valley, Uttarakhand***

37. **Avinash Kumar** (ID M.Tech. 2014) ***Petrogenesis of Dalhousie granite***

38. **Smruti Sourav Rout** (ID M.Tech. 2014) ***Estimation of Degree of Chemical and Thermal Diffusion in melts and minerals considering x-dependent diffusivities***

39. **Rajnish Kumar** (ID M.Tech. 2014) ***Effect of Industrial Effluents on Soil: A case study of Bhadohi region, Uttar Pradesh***

40. **Siddharth Konkepudi** (ID M.Tech. 2014) ***Effect of Industrial Effluents on Groundwater: A case study of Bhadohi region, Uttar Pradesh***

41. **Rohan Arora** (ID M.Tech. 2015) ***Radon concentration in Groundwater of Yamuna Plains, Haryana, India***

42. **Veer Singh Meena** (ID M. Tech. 2015) ***Identification of source of groundwater recharges using isotopic signatures in aquifers of Upper Ganga-Yamuna Doab western Uttar Pradesh, India***

43. **Giridas Maiti** (M. Sc. 2015) ***Paleostressanalysis of shear zones and conjugate vein arrays near Main Boundary Thrust (MBT), Rishikesh (Uttarakhand)***

44. **Satya Veer** (M. Tech. 2016) ***Estimation of rainfall recharge and canal seepage by using isotopic techniques in Chajlet block, Moradabad, Uttar Pradesh***

45. **Shashank P M** (M. Tech. 2021) ***Terrane characterization of the Sutlej Valley from the base of the MCT till after the STDS, NW Himalayas***

46. **Smrutisriya Bisoyi (**M. Sc. 2025) ***Study of Paleo-Landslide Zones in the Gahwal Himalaya***

EXPEDITIONS

- Zanskar valley -1987, 1988, 1989
- Scandinavian Caledonides - 1990
- Tso-Morari, Karakoram and Pangong -1998, 1999, 2001, 2004, 2007, 2008, 2009
- Ladakh-Karakoram – 2007, 2008, 2009

FIELD WORK

Himachal Himalaya, Kashmir Himalaya, Garhwal-Kumaon Himalaya, Arunanchal Himalaya, Scandinavian Caledonides (Norway-Sweden border - Fjalnas), Kalgoorlie Goldfield (Western Australia) Lavert Volcano-Sedimentary terrain (Western Australia), Sardinia (Italy).

COUNTRY VISITED :

Sweden, Norway, Denmark, Nepal, United State of America, Australia, Germany, Japan, France, Singapore, Hon-Kong, United Kingdom, Italy, Russia, Switzerland, Taiwan

EDUCATIONAL VISITS ABROAD:

July 1990 to Jan 1991 (6 months): For working out the pre-Himalayan signatures of magmatic activities by U-Pb dating of zircon and Rb-Sr dating on whole rock powder of Himalayan Granite to Swedish Museum of Natural History, Stockholm, Sweden.

May 2000 to April 2001: As BOYSCAST Fellow, at Centre for Global Metallogeny, Department of Geology and Geophysics, The University of Western Australia, Perth, WA, Australia, to work out the "Timing and Geochemistry of the Cenozoic Leucogranites in the NW-Himalaya: implication on the Geodynamics of the Indian Lithosphere". The objective was to workout the melting characteristics of the Himalayan continental crust, fluid interaction during deformation, timing and modelling of the Himalayan leucogranite emplacement related to Collision Tectonics.

Dec 2002 to March 2003: As Visiting INSA-DFG Fellow, at Center for Isotope Geology, Department of Earth and Environment Science, Ludwig-Maximillan University Munich, Germany, to work out "The age of Karakoram batholith by U-Pb zircon dating technique and Nd signature of the volcanic arc sequence of Shyok Suture Zone of Himlayan region". The objective was to learn how to establish clean room for National Facility on Isotope Geology/Geochronology at Indian Institute of Technology Roorkee, Roorkee, India.

March 2005 to April 2005: Swedish Museum of Natural History, Stockholm, Sweden, for U-Pb dating of zircon and Sm-Nd dating of rocks on whole rock powder of Himalayan Andesite and South Indian Granulites.

April 2005: Thermo Electron Corporation, Breman, Germany for operations training of Triton TI. The objective was to get acquainted for trouble shooting of the Mass Spectrometer.

TOPICS OF INVITED LECTURES:

- Himalayan Heritage of Uttrakhand
- Environmental Geology
- Elements of Word Processing
- Geological Investigations for Small Hydro Projects
- Geological Investigations and site evaluation for Small Hydro Projects
- Recent views on structural interpretation of Himalayan region
- Episodic influx of magma during Himalayan orogeny: evidence from SHRIMP U-Pb zircon ages
- Himalayan Collision Tectonics: Geochronological Scenario
- Himalayan Granitoids
- Himalayan Graniotoids: its significance in Himalayan Tectonics
- *Bhukamp ke karan aur unse hone wali kshati se bachaw* as Chief Guest keynote address
- Geochronology and Isotope in Igneous Petrogenesis
- Isootpe Geology and different Radiogenic Isotopic Systems (Rb-Sr, Sm-Nd & U-Pb)
- Isotopes in Geochronology and genesis of Igneous rocks.
- Geothermal Energy Resources of Uttrakhand
- Rising of Himalaya
- Geotourism in Himalaya
- Vernacular construction practices for Earthquake resilient Structures in Himalayan Region

TRAINING:

Isotope geochemistry & geochronology on **Finnegan Mat 261 mass-spectrometer** for U-Pb dating of zircon and Rb-Sr techniques. This includes sample collection and preparation, chemical separation, data acquisition on mass spectrometer and interpretation at Swedish Museum of Natural History, Stockholm, Sweden (for 6 Months).

Metamorphic petrology and mineral chemistry using **Electron Probe Micro Analyser (EPMA)** at USIC, University of Roorkee, Roorkee, India

Excellence in Diagramatics and Cartography in Earth Sciences at Department of Geology, Pune University, India

On hand experiences and the Courses on **Scanning Electron Microscopy** (the course covered basic SEM, digital imaging and minimum sample requirements. Users were trained on instruments appropriate to their needs to basic operational standards. Afternoon practical sessions support the Theory), **Environmental Scanning Electron Microscopy** (the course covered special characteristics of the ESEM with emphasis on control of temperature and pressure of the sample chamber environment. The benefits of ESEM on a range of moist and uncoated specimens of a physical and biological nature. Along with this a new charge contrast imaging (CCI) was also covered), **Electron Microbeam Analysis** (an introductory course on electron

microbeam analysis of bulk samples and it covered general theory and principles of operation of energy dispersive X-ray detector, X-ray data correction procedures and sample preparation. Basic wavelenth dispersive X-ray analysis was also covered) and **Digital Image Manipulation and Storage** (the course contained review of the nature of digital image; explaining the relevent terminology, the currently available facilities for printing and transferring of images and the various media for image storage. The course also covered introduction to the image manipulation softwares like Adobe photoshop 5.0, NIH Image 1.62, Macromedia Freehand 7.0 and Powerpoint 5.0) at The Western Australian Centre for Microscopy and Microanalysis, The University of Western Australia.

On hand experience and course on **SHRIMP II** (**S**ensitive **H**igh mass **R**esolution **I**on **M**icro**P**robe II) at The Western Australian Isotope Science Research Center based at Curtin University. The course was aimed at the working knowledge of: how ion microprobe function; what ion microprobes are used for; how not to damage the SHRIMP II; some common problem and fixes; how to collect good data and how to identify bad data; the fundamentals of problem diagnosis and safety.

Isotope geochemistry & geochronology on **Finnegan Mat 261 massspectrometer** for U-Pb dating of zircon and Rb-Sr techniques. This includes testing Pb blanks in the lab along with column preparation for U-Pb technique, data acquisition on mass spectrometer and interpretation at Center for Isotope Geology, Department of Earth and Environment Science, Ludwig-Maximillan University Munich, Germany (for 3 Months).

Isotope geochemistry & geochronology on **Triton T1 massspectrometer** for U-Pb dating of zircon and Sm-Nd techniques. This includes testing Pb blanks in the lab along with column preparation for U-Pb technique, data acquisition on mass spectrometer and interpretation at Swedish Museum of Natural History, Stockholm, Sweden and Thermo Electron Corporation, Breman, Germany (for 1 Months).

Isotope geochemistry & geochronology on **Triton T1 massspectrometer,** India Geochemistry on ICP-MS (Perkin Elemer), India

RESEARCH PROJECT AWARDED:

As Principal Investigator:

1. **Collision Tectonics : emplacement of Late Cenozoic Tos Granite, Parvati Valley, NW-Himalaya, Himachal Pradesh**" (April 1996 – May 1998) **–** Rs. 3.6 lacs – DST, New Delhi
2. "**Workshop on Himalayan Tectonics (The HIMPROBE Results)**" (2003-2004) – Rs. 2.64 lacs – DST, New Delhi
3. "**Contact Programme for Isotope Geology and Geochronology: Rb-Sr systematcs" *completed*** (2004-2005) – Rs. 2.4 lacs – DST, New Delhi
4. "**Himalayan Collision Tectonics: Migmatites and Leucogranite generation"**. (2002-2006) - Rs. 21.6768 lacs – DST, New Delhi
5. "**Migmatite Petrogenesis and Leucogranite Generation during Himalayan Collision"** (2003-2006) – 10.0 lacs – MHRD, New Delhi
6. "**Geological Expedition to Ladakh and Karakoram"** (2007) – 11.0 lacs – DST, New

Delhi

7. "**Text- Book Series for the graduate students in Earth Sciences"** (2010-2013) – 88.0 lacs – Ministry of Earth Sciences, New Delhi
8. "**Establishing a National Facility of 40Ar-39Ar Geo-thermochronology at the Indian Institute of Technology, Mumbai**" (2008-2013) – Rs. 39 lacs – DST, New Delhi
9. **"Migmatization, melting, leucogranite generation, and exhumation of Higher Himalayan Crystallines (HHC), Sikkim Himalaya"** (2014-2017) – Rs. 23.96 lacs - Ministry of Earth Sciences, New Delhi
10. **"Terrane Characterization across NW Himalaya, Ladakh and Karakoram"** (2020-2023) – 74.54 lacs – Ministry of Earth Sciences, New Delhi

As Co-Investigator:

11. "**Geodynamics and Exhumation of the South Indian Granulite Terranes : Role of Intra-Continental Shear Zones across Kanyakumari-Kuppan Transect"** (1997-2000). ***Completed* –** Rs. 13.68 lacs – DST, New Delhi.
12. **"Tectonics, P-T constraints and timing of India-Asia Collision along the NW-Himalayan Geotransect"** (1997-2001). ***Completed* –** Rs. 22.54 lacs – DST, New Delhi
13. **Geochronological and Strontium Isotopic studies of the Granitic and Gneissic rocks of Manali, Chhotadara and Jaspa Area, Himachal Pradesh"** (2004-2005) – Rs. 12.24 lacs – DST, New Delhi.
14. "**National facility on Geochronology/Isotope Geology at University of Roorkee".** (2000-2006) – Rs. 453.49 lacs – DST, New Delhi.
15. **"Major Intracontinetal Shear Zones of South India and their role in Gondwana Assembly: Geochronological and Geochemical constraints"** (2003-2006) - Rs. 11.75 lacs – DST, New Delhi.
16. "**Integrated tectonic, petrological, geochronological and geophysical Investigations, Arunanchal Himalaya**". (2006-2009) – Rs. 15.31 lacs – DST, New Delhi.
17. "**National facility on Geochronology/Isotope Geology at IITRoorkee".** (2007) – Rs. 20 lacs – IIT Roorkee.
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21. "**Identification of three dimensional attenuation structure using earthquake data: Investigation for Himalaya and Mexico**" (2018-2021) – Rs. 22.84 Lacs – DST, New Delhi
22. "**Soil Amplification and Site Response for Potential Great Earthquake in Northern Himalayas in the Light of the 2015 Gorkha Nepal Earthquake"** (2018-2021) – Rs. 20.25 Lacs – DST, New Delhi.

LIST OF PUBLICATIONS

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1. Jitendra Kumar Yadav, Priyanka Singh, Areeb Kidwai, Satyendra Singh, Narendra Kumar, Ratan Kar, **Sandeep Singh**, Munendra Singh (2025) Light Rare Earth Elements in Freshly Deposited River Sediments of Ganga Alluvial Plain, Northern India: Geogenic Variability and Anthropogenic Influences. *Soil and Sediment Contamination: An International Journal*, *34*(5), 782–807. https://doi.org/10.1080/15320383.2024.2384920

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9. Priyanka Singh, **Sandeep Singh** and Rajesh Kumar Singh (2024) Biotite as Geoindicator of Anthropogenic Lanthanum in Gomati River Sediments, Ganga Alluvial Plain, Northern India. In book: Multifaceted Applications of Chemical Sciences Publisher: Thanuj International Publishers, Tamil Nadu, India (ISBN: 978-93-94638-88-4). p 23-31.

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C. Other Publications:

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2. **Sandeep Singh** (2004) Radiometric dating of zircon: A small profile. Shilalipi, 1(1), 15-16.
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D. Book Review:

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ADMINSTRATIVE RESPONSIBILITIES AT INSTITUTE IN PAST:

- Assistant Warden (Residential), Jawahar Bhawan, UOR, Roorke between August 1992 to January 1995.
- Member of Dean's organization as Warden, Azad Bhawan, Warden Cautley Bhawan (June 1995 – April 2000)
- Staff Advisor Hockey
- Staff Advisor Programme Management in Cultural Society
- Member Selection committee for selection of players for Inter-IIT Staff meet 2004 at IIT Madras, Chennai
- Additional Security Advisor, Thomso (Student Festival) 2005
- Member of Dean's Organization as Warden, Ravindra Bhawan (2004-2006)

- Deputy Chief Club Advisor, Student Club, IITRoorkee, Roorkee
- Officer Incharge Transportation w.e.f. 1.4.2004
- Staff Advisor Hockey
- Member – School Management Committee**,** *Adarsh Bal Niketan, IITRoorkee Campus, Roorkee* (2006 - 2010)
- Dy. Faculty Advisor, THOMSO-2007, Annual Youth Festival, IITRoorkee
- Professor-In-Charge, Institute Transportation Cell (May 2004 – Dec 2010)
- Dy. Chief Sports Advisor (Jan 2011 – Mrch 2013)
- Dy. Chief Advisor, Students Club, IITRoorkee (2007-2008)
- Staff Advisor Hockey, IITRoorkee Sports Association (2001-2009)
- Staff Advisor Football, IITRoorkee Sports Association (2009 - 2010)