

DR. KOUSHIK SEN, WIHG, DEHRADUN, INDIA



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RESEARCH GROUP: STRUCTURE & TECTONICS

FIELD OF SPECIALIZATION: TECTONICS, MICROSTRUCTURES, GEODYNAMICS

EDUCATION:

PhD (IIT Kharagpur, 2006)

Details of educational qualifications starting from the most recent ones.

PROFESSIONAL EXPERIENCE: SCIENTIST IN WIHG SINCE 2008

VISITING POSITIONS:

TEACHING EXPERIENCE:

SERVICES:

a. Supervision/Guidance to Ph.D. Students: 4 (1 submitted, 3 on going)

b. Training:

c. Teaching:

d. Membership:

e. Editorial Board:

f. International/National Seminars/Workshop:

g. External Research Fund received & Project Handled:

h. Member of important Committees:

AWARDS/FELLOWSHIPS/HONORS/MEMORIAL LECTURES:

a. Awards/Medals/Prizes:

K. Naha memorial award from Geological Society of India (2012)

b. Fellowships:

c. Memorial Lectures:

d. Recognition/Honors:

COUNTRIES VISITED:

NATIONAL/INTERNATIONAL (outside CSIR-NGRI) COLLABORATION:

Inside WIHG Collaborator:

PATENT -

SCHOLARSHIPS AWARDED, GATE

PH.D. ADVISOR:

LIST OF PUBLICATIONS

(a) SCI Papers

Publications:

(Total Publications: 28; Citations: 291; h-index: 11; i10 index: 13)

1. Phukon, P.J., **Sen, K.**, Singh, P.C., Sen, A., Srivastava, H.B., Singhal, S. (2019) Characterizing anatexis in the Greater Himalayan Sequence (Kumaun, NW India) in terms of pressure, temperature, time and deformation. *Lithos*, **344-345**, 22-50. <https://doi.org/10.1016/j.lithos.2019.04.018>

2. Lakhan, N., Singh, A. K., Singh, B. P., **Sen, K.**, Singh, M. R., Khogenkumar, S., Singhal, S., Oinam, G. (*in press*) Zircon U-Pb geochronology, mineral and whole-rock geochemistry of the Khardung Volcanics, Ladakh Himalaya, India: Implications for late Cretaceous to Paleogene continental arc magmatism. *Geological Journal*. 1-24. DOI: 10.1002/gj.3594
3. Mamtani, M.A., Bhatt, S., Rana, V., **Sen, K.**, Mondal, T.K. (2019) Application of anisotropy of magnetic susceptibility (AMS) in understanding regional deformation, fabric development and granite emplacement. *Journal of the Geological Society, London (Spec. Vol)*, **489**. <https://doi.org/10.1144/SP489-2019-292>
4. Phukon, P.J., Sen, K., Srivastava, H.B., Singhal, S., Sen, A. (2018) U-Pb geochronology and geochemistry from the Kumaun Himalaya, NW India, reveal Paleoproterozoic arc magmatism related to formation of the Columbia supercontinent. *Geological Society of America Bulletin* **130**, 1164-1176.
5. Sen, A., **Sen, K.**, Srivastava, H.B., Singhal, S., Phukon, P.J. (2018) Age and geochemistry of the Paleoproterozoic Bhatwari gneiss of Garhwal lesser Himalaya, NW India: implications for the pre-Himalayan magmatic history of the Lesser Himalayan basement rocks. *Journal of the Geological Society, London (Spec. Vol)*, **481**. <https://doi.org/10.6084/m9.figshare.c.4272158>.
6. **Sen, K.**, Adlakha, V., Singhal, S., Chaudhury, R. (2017) Migmatization and intrusion of "S-type" granites in the trans-Himalayan Ladakh Magmatic Arc of north India and their bearing on Indo-Eurasian collisional tectonics. *Geological Journal (in press)*. DOI: 10.1002/gj.2973 1-14.
7. Bikramaditya, R. K., Singh, A. K., **Sen, K.**, Sangode, S. J. (2017) Detection of weak late-stage deformation event in granitic gneiss through anisotropy of magnetic susceptibility: Implications for tectonic evolution of the Bomdila Gneiss of the Arunachal Lesser Himalaya, Northeast India. *Geological Magazine* **154**, 476-490.
8. Hazarika, D., Paul, A., Wadhwan, M., Kumar, N., **Sen, K.**, Pant, C. C. (2017) Seismotectonics of the Trans-Himalaya, Eastern Ladakh, India: Constraints from moment tensor solutions of local earthquake data. *Tectonophysics* **698**, 38-46.
9. **Sen, K.**, Chaudhury, R., Pfänder, J. (2015) ^{40}Ar - ^{39}Ar age constraint on deformation and brittle-ductile transition of the Main Central Thrust and the South Tibetan Detachment zone from Dhauliganga valley, Garhwal Himalaya, India. *Journal of Geodynamics* **88**, 1-13.
10. **Sen, K.**, Mukherjee, B. K., Collins, A. S. (2014) Interplay of deformation and magmatism in the Pangong Transpression Zone, Eastern Ladakh, India: Implications for remobilization of the trans-Himalayan magmatic arc and initiation of the Karakoram Fault. *Journal of Structural Geology* **62**. 13-24.

11. **Sen, K.**, Mukherjee, B. K., Collins, A. S. (2014) Reply to comment on “Interplay of deformation and magmatism in the Pangong Transpression Zone, Eastern Ladakh, India: Implications for remobilization of the trans-Himalayan magmatic arc and initiation of the Karakoram Fault.” **Journal of Structural Geology** **65**, 120-122.

12. **Sen, K.**, Collins, A. S. (2013) Dextral transpression and late Eocene magmatism in the trans-Himalayan Ladakh Batholith (North India): Implications for tectono-magmatic evolution of the Indo-Eurasian collisional arc. **International Journal of Earth Sciences** **102**, 1895-1909. DOI 10.1007/s00531-012-0826-8.

13. **Sen, K.**, Collins, A. S. (2013) Reply to comment on “Dextral transpression and late Eocene magmatism in the trans-Himalayan Ladakh Batholith (North India): Implications for tectono-magmatic evolution of the Indo-Eurasian collisional arc.” **International Journal of Earth Sciences** **102**, 973-975. DOI 10.1007/S00531-013-0865-9.

14. **Sen, K.**, Dubey, A. K., Tripathi, K., Pfänder, J. A.(2012) Composite mesoscopic and magnetic fabrics of the Paleo-Proterozoic Wangtu Gneissic Complex, Himachal Himalaya, India: Implications for ductile deformation and superposed folding of the Himalayan basement rocks. **Journal of Geodynamics** **61**, 81-93

15. **Sen, K.** and Mamtani, M.A. (2006). Magnetic fabric, shape preferred orientation and regional strain in granitic rocks. **Journal of Structural Geology** **28**, 1870-1882.

16. **Sen, K.**, Majumder, S., Mamtani, M.A. (2005) Degree of Magnetic Anisotropy as a strain intensity gauge in ferromagnetic granites. **Journal of the Geological Society, London** **162**, 583-586.

17. Hazarika, D., **Sen, K.**, Kumar, N. (2014) Characterizing the intracrustal low velocity zone beneath northwest India-Asia collision zone. **Geophysical Journal International** **199**, 1338-1353.

18. Mukherjee, B. K., **Sen, K.**, Sachan, H.K., Paul, S.K. (2012) Exhumation history of the Karakoram fault zone mylonites: new constraints from microstructures, fluid inclusions and $^{40}\text{Ar}/^{39}\text{Ar}$ analyses. **Lithosphere**. **4**, 230-241. DOI 10.1130/L163.1
19. Tripathi, K., **Sen, K.**, Dubey, A. K. (2012) Modification of fabric in pre-Himalayan granitic rocks by post-emplacement ductile deformation: Insights from microstructures, AMS and U-Pb geochronology of the Paleozoic Kinnaur Kailash Granite and associated Cenozoic leucogranites of the South Tibetan Detachment Zone, Himachal High Himalaya. **International Journal of Earth Sciences**. **101**, 761-772. DOI 10.1007/s00531-011-0657-z
20. Sharma, R., Gupta, V., Arora, B. R., **Sen, K.** (2010) Petrophysical properties of the Himalayan Granitoids: Implication on composition and source. **Tectonophysics** **497**, 23-33.
21. Sen, K., Das, S., Mukherjee, B. K., **Sen, K.** (2013) Bimodal stable isotope signatures of Zildat Ophiolitic Mélange, Indus Suture Zone, Himalaya: implications for emplacement of an ophiolitic mélange in a convergent setup. **International Journal of Earth Sciences** **102**, 2033-2042. DOI 10.1007/s00531-013-0915-3.
22. **Sen, K.**, Tripathi, K., Dubey, A. K. (2013) Is the North Indian continental margin a Palaeo-proterozoic magmatic arc? Insights from magnetomineralogy and geochemistry of the Wangtu Gneissic Complex, Himachal Lesser Himalaya **Current Science** **104**, 1527-1533.
23. **Sen, K.**, Sharma, R., Arora, B. R., Gupta, V. K. (2010) Influence of magnetic fabric anisotropy on seismic wave velocity in paramagnetic granites from NW Himalaya: results from preliminary investigations. **Journal of the Geological Society of India** **76**, 322-330.
24. **Sen, K.**, Mukherjee, B. K., Sachan, H. K. (2009). Field and microstructural analysis of the Pangong granodiorite, Ladakh (NW India): Implications for tectonics along the Karakoram Fault Zone. **Current Science** **96**, 1124-1130.

25. Jayangondaperumal, R., Dubey, A. K., **Sen, K.** (2010) Mesoscopic and magnetic fabrics in arcuate igneous bodies: an example from the Mandi-Karsog pluton, Himachal Lesser Himalaya. **Geological Magazine** **147**, 652-664.
26. Sinha, S., **Sen, K.**, Sangode S. J., Kumar, R., Ghosh, S. K. (2009). Sedimentology and magnetic fabric studies of Mio-Pliocene fluvial succession in the NW Himalayan foreland basin. **Current Science** **96**, 260-267.
27. Jayangondaperumal, R., Dubey, A. K., **Sen, K.** (2010) Structural and magnetic fabric studies of recess structures in the western Himalaya: Implications for 1905 Kangra earthquake. Mamtani, M. A. (Ed.) *'Structural Geology: from classical to modern concepts'*. **Journal of the Geological Society of India** **75**, 225-238.
28. Sharma Tandon, R., Gupta, V., **Sen, K.** (2015) Seismic properties of naturally deformed quartzites of the Alaknanda valley, Garhwal Himalaya, India. **Journal of Earth System Sciences** **124**, 1159-1175.

(b) Non-SCI Articles

(c) Chapter in Books

(d) Books-authored/Edited volume:

(e) Abstract volume:

(f) Reports/Other Documents:

(g) Articles in Proceeding Volumes