

Dr. Indra Sekhar Sen



Dr. Indra Sen is one of those rare Earth Scientist who apply long-lived radioisotopes to connect Earth's atmosphere, cryosphere, and geosphere—the critical components of Earth System Sciences. Dr. Sen's came back to India in the year 2013, after completion of postdoctoral fellowship from Woods Hole Oceanographic Institution (WHOI), which is one of leading oceanographic institution that offers their academic degrees from Massachusetts Institute of Technology (MIT). In the last 6 years, Dr. Sen established the Low-Temperature Research Group at IIT-Kanpur having a state-of-the-art mass spectrometry facility. Dr. Sen's research group have geochemically modeled the flow of platinum group elements amongst different components of Earth, which was published in the highly coveted journal—*Geochimica et Cosmochimica Acta* (Mitra and Sen, *Geochimica et Cosmochimica Acta*, 2017, 417-432). On another instance, they have geochemically modeled the ice meltwater flow in large Himalayan Rivers (Boral and Sen, *Geochemical Perspectives Letters*, 2020, 13, 48-53—thereby coupling Earth's cryosphere with rivers. Similarly, their group quantified the flux of nutrients from small rivers to Bay of Bengal (Indra Sen et al., *ACS Earth and Space Chemistry* 2018, 2, 64-71). In his research career, he has published 17 papers with total cumulative impact factor of ~ 74.2 . Dr. Sen's contributions to Indian geoscience are many folds. He designed and commissioned a state-of-the-art metal free clean laboratory, and established Quadrupole Inductively Coupled Plasma Mass Spectrometer (Q-ICP-MS), Liquid Water Isotope Analyzing and a Triple Quadrupole Inductively Coupled Plasma Mass Spectrometer (QQQ-ICP-MS) facility. It is noteworthy to mention that Dr. Sen is the first person in India to set up the QQQ-ICP-MS facility. The new QQQ-ICP-MS facility has significant advantages over the Q-ICP-MS in terms of removing spectral interferences, and therefore brought in a paradigm shift in mass spectrometry measurements in India. As a result, Dr. Sen's laboratory is widely used by numerous academic institutions and government organizations. Successfully development of such a state-of-the-art facility with large user base from both academia and industry is a great achievement at his age. Dr. Sen's lab received several prestigious awards including the Intel-DST Mission mode project to develop a real time water quality monitoring platform for Ganga River. He is also winner of the 2020 ATAL New India Challenge from NITI Aayog, and the 2016 young scientist award from the Ministry of Mines. For his outstanding contributions to low-temperature geochemistry, University of South Carolina gave him Adjunct Faculty status in the School of Earth, Ocean, and Environmental Sciences. In recognition to his outstanding research contributions in the field of Geo-Science and Technology, the Ministry of Earth Sciences honours Dr. Indra Sekhar Sen with the "Young Researcher Award in the field of Geo-Science" for the year 2020.