

First report of Cambro-Ordovician aged monazites from Lesser Himalaya Schists and its implications in peri-Gondwana craton amalgamation

PRITAM NASIPURI¹ AND DR. HIFZURRAHMAN, PH.D.²

¹Indian Institute of Science Education and Research Bhopal, India

²INDIAN INSTITUTE OF SCIENCE EDUCATION AND RESEARCH

Presenting Author: pritams@iiserb.ac.in

Monazites are accessory minerals that can be *in-situ* probed by an Electron Probe Micro Analyzer to understand the crustal-amalgamation processes. In the Lesser Himalayan schists, variably sized monazites occur as accessory minerals. Usually, they are antithetic to garnet modal abundances in the Lesser Himalayan schists. A majority of the monazite grains from representative samples exhibit a wide variation in ThO₂ content. The PbO content of monazite grains is highly variable and often goes below the detection limit of from metasedimentary rock samples obtained adjacent to Main Central Thrust that separate the Lesser and Higher Himalayan rocks.

Except for the widely reported variably zoned monazites grown over quartz and apatite inclusion, we report the occurrences of a new set of monazites, that are relatively smaller (~ 10 to 20 μm.), essentially inclusion-free, and characterized with relatively smooth grain boundary and higher ThO₂ (9.06 wt.% - 4.68 wt.%). These grains exhibit (La/Nd)_{CN} ratio 2.63-2.23, with a positive Eu anomaly with an average value of 1.14 (2σ=0.17). These monazites yield a weighted average U-Th-Pb_{total} age of 522±55 Ma. The stabilization of Pan-African aged monazite imply accretion of East-Asian Craton and North India Continental Block during Northern Gondwanaland assembly.