

## **THICK ARCHEAN CONTINENTAL CRUST : NEW EVIDENCE FROM THE INDIAN PENINSULA**

BHATTACHARYA SAMARENDRA INDIAN STATISTICAL INSTITUTE CALCUTTA - 700 035. INDIA.

The granulite terrane along the east coast of the Indian Peninsula has traditionally been described as a Proterozoic mobile belt. However, recent structural and petrological studies revealed large scale reworking of probable Archean granulites. Detailed structural studies in several sectors have now established early development as a convergent orogen. Field studies and thermal modelling further provide evidence of crustal shortening without significant underplating by mafic magmas. Field, petrologic and geochemical studies of a charnockite massif, of tonalitic to trondhjemitic composition, and associated rocks document generation by dehydration melting of basaltic rocks at lower crustal depths, with garnet granulite residues exposed as cognate xenoliths. This, and the thermal gradients of about 25 – 30°C/km indicate that the continental crust prior to this melting was at least 35 km thick. Finally, this melting event, correlated to the early compressional deformation, is dated as 3.2 billion years old by Sm – Nd systematics. Thus, as early as 3.2 billion years ago a continental crust of normal thickness existed in this part of the globe also.