

Speaker: Gyan Bhanot

Title: Clustering and PCA reveal the migration path of modern humans "Out of Africa".

Abstract: Mitochondria are organelles in the cytoplasm which play a key role in producing most of the energy needed by the cell. Their origin is a symbiosis between proto-cyanobacteria and precursors of eukaryotic cells 2 billion years ago. They have a circular chromosome (mtDNA) which is transmitted exclusively by maternal descent and can be used to trace the history of migrating populations. In 1987, a study of some of the mutations on mtDNA for showed that the origins of modern humans can be traced to a single woman - the so called "mitochondrial Eve" who lived in Africa ~ 150,000 years ago. I will describe the background of this discovery and present new results based on PCA and clustering analysis of complete sequencing of thousands of mtDNA which reveals the details of our migration "Out of Africa" approximately 50K-70K years before present.