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**Day 3- 27.6, Session V- 10:00-11:30**

## **Paleo-epigenetics: the use of ancient DNA methylation as environmental and psychological sensor**

Abstract:

Analyzing the conditions in which past individuals lived is key to understanding the environments and cultural transitions to which humans had to adapt. In the talk, we show a methodology to probe into past environments, using reconstructed pre-mortem DNA methylation maps of ancient individuals. We review a large body of research showing that differential DNA methylation is associated with changes in various external and internal factors, and propose that loci whose DNA methylation level is environmentally-responsive could serve as markers to infer about ancient daily life, diseases, nutrition, exposure to toxins and more. We demonstrate this approach by showing that hunger-related DNA methylation changes are found in ancient hunter-gatherers. The strategy we present here opens a window to reconstruct previously inaccessible aspects of the lives of past individuals.