

## Neanderthal in high definition



### A meeting to discover paleoanthropology's scientific revolution

16<sup>th</sup> September 2013

Paleoanthropology in the last years has been going through an exceptional transformation that has allowed to make amazing discoveries (like, for instance, that *Homo sapiens* and *Homo neanderthalensis* in ancient times underwent hybridization), and will enable many more in the future. Such renovation is connected to the use of cutting-edge and multidisciplinary scientific analysis methodologies: paleogenetics, microTAC, increasingly advanced dating methods, and much more. Claudio Tuniz, a professor of ICTP, on the occasion of the next *colloquium* at SISSA, to be held on 18 September at 4pm, will illustrate to the public the scientific revolution of paleoanthropology and also address about some of his most recent studies.

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**18 September 2013, 4pm  
SISSA, Main Lecture Hall  
Via Bonomea, 265 – Trieste (Italy)**

Only two years ago Svante Paabo, the famous Swedish paleogeneticist, revolutionized our collective imagination regarding on Neanderthals, showing that a few traces of the ancient *Homo* is still present in our DNA and that, therefore, some of our sapiens ancestors must have mated with the more ancient species. In very recent years, besides, numerous paleoanthropological discoveries (including the re-dating of already known fossils) have shown that the habits and cognitive faculties of these ancient hominids were much more developed than what we had believed until then. Such 'revival' of the Neanderthal figure and the much clearer picture we have today (something unimaginable until a few years ago) have been possible with the recent development of new, high-tech scientific methodologies in paleoanthropological research. All these themes will be addressed on Wednesday 18 September at 4pm at SISSA's Main Lecture Hall by Claudio Tuniz, a scientist of ICTP Trieste, visiting professor of University of Wollongong, Australia and Editor-in-chief of scientific review *Archaeological and Anthropological Sciences*. The encounter with Tuniz, an expert on dating and on fossil imaging techniques, is part of the series of *colloquia* hosted by SISSA of Trieste.

In contemporary paleoanthropology various scientific disciplines intertwine "besides the well-known paleogenomics, cutting-edge dating techniques are available today and they are becoming increasingly accurate." tells Tuniz. "Few people know, besides, that today the studies on paleoclimate are a key discipline in this domain. We know in fact that the climate and the environment affect evolution, and this is why it is important to know how the environmental conditions have changed throughout man's history."

"Today we are able to study the fossil finds in an extraordinary manner, unthinkable until only 4-5 years ago. Virtual paleoanthropology is opening up extremely promising scenarios. Today we can move inside a fossil find and handle it in 3D without touching it and explore its deeper layers without damaging it and without having to extract samples." Thanks to microTAC (a similar machine is also used at ICTP in Trieste) Tuniz and his colleagues have, for instance, analyzed the mandible of a Neanderthal child. "Employing such techniques we can extract a single tooth virtually and examine it in detail, we can even observe the milk teeth that have not sprouted yet. We can also see the inside layer of a tooth and understand many things about the life of the individual to whom the mandible belonged."

"The new techniques also enable to shift from micro to macro. We can in fact use methodologies such as the *ground penetrating radar* and discover still buried finds."

"Possibilities are endless today, and will require a greater multidisciplinary approach, in order to carry out a synthesis of what we know and build a 'story' from this complex picture."

The colloquium is open to the public and will be held in English.



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