



Institute colloquium

Patterning of the vertebrate skin through mechanical and Turing instabilities

Michel Milinkovitch

University of Geneva

Host: Carl-Philipp Heisenberg

Using our recent research results in non-model species of mammals and reptiles, I will discuss the possibility that some specific aspects of skin morphology in vertebrates are emerging from geometric, reaction-diffusion (Turing), and mechanical instabilities. I will illustrate these concepts with three examples. First, I will show that skin thickness variation (generated by 3D morphogenesis) of skin scales in ocellated lizards causes the underlying reaction-diffusion dynamics to separate into microscopic and mesoscopic spatial scales, the latter generating a cellular automaton that computes a colour pattern. Second, and third, I will compare the cases of crocodilian and African elephant skins, with the former developing head scales through a selforganisational process possibly analogous to material cracking, whereas the latter exhibits an intricate network of true cracks generated by bending stress in the stratum corneum.

Monday, November 5, 2018 04:00pm - 05:00pm

Raiffeisen Lecture Hall, Central Building



This invitation is valid as a ticket for the ISTA Shuttle from and to Heiligenstadt Station.

Please find a schedule of the ISTA Shuttle on our webpage:

<https://ista.ac.at/en/campus/how-to-get-here/> The ISTA Shuttle bus is marked ISTA Shuttle (#142) and has the Institute Logo printed on the side.