



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**

IST Austria Campus Raiffeisen Lecture Hall, Central Building



This invitation is valid as a ticket for the IST Shuttle from and to Heiligenstadt Station. Please find a schedule of the IST Shuttle on our webpage: [http://ist.ac.at/fileadmin/user\\_upload/pdfs/IST\\_shuttle\\_bus.pdf](http://ist.ac.at/fileadmin/user_upload/pdfs/IST_shuttle_bus.pdf) The IST Shuttle bus is marked IST Shuttle (#142) and has the Institute Logo printed on the side.