

Mathematical modelling of skin pattern formation in the corn snake

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In the context of highly multidisciplinary studies investigating the development of skin colour patterns in the corn snake (*Pantherophis guttatus*), we are seeking creative and highly motivated students with a background in physics or applied mathematics to investigate physical models of pattern formation in a multicellular biological tissue. The model will be used to understand pattern variation on the skin of the corn snake. The successful candidates will interact with a multidisciplinary team of physicists, computer scientists and biologists and will be trained in theoretical physics applied to biological systems.



References

The Chemical Basis of Morphogenesis by A. M. Turing
[Philos. Trans. R. Soc. B, 237, 641: 37-72 \(1952\)](#)

Genome mapping of a LYST mutation in corn snakes indicates that vertebrate chromatophore vesicles are lysosome-related organelles
[PNAS 117, 42 : 26307-26317 \(2020\)](#)

A Living Mesoscopic Cellular Automaton Made of Skin Scales
[Nature 544, 7649 : 173-179 \(2017\)](#)

Patterning and growth control in vivo by an engineered GFP gradient
[Science, 370\(6514\), 321-327 \(2020\)](#)

Links

<https://genev.unige.ch/research/laboratory/guillaume-salbreux>

<https://genev.unige.ch/research/laboratory/Michel-Milinkovitch> - <https://www.lanevol.org>