



Münchner Physik- Kolloquium

Winter
2017/18

Does symmetry arise from the algorithmic nature of evolution?

Prof. Dr. Ard Louis, *Rudolf Peierls Centre for Theoretical Physics, University of Oxford, U.K.*

Monday, 22 January 2018, 17:15 h

Hörsaal H 030, Fakultät für Physik der LMU, Schellingstraße 4, München

The natural world is full of symmetries. Do these arise because natural selection favours symmetry, or could they arise for other reasons? By applying the coding theorem from algorithmic information theory to models of evolution we argue that random mutations are exponentially more likely to generate phenotypic variation that has low algorithmic complexity than variation that has higher complexity. We find evidence for this exponential scaling in protein quaternary structures, RNA secondary structures, and gene regulatory networks. Rather than being favoured by natural selection, simpler and therefore more symmetric phenotypes emerge because they are easier to discover in evolutionary search.

Student event: Meet the speaker

We invite you to a **student-only** discussion-round with Prof. Dr. Ard Louis before his Munich Physics Colloquium talk.

Be curious and feel free to ask any question.

Monday, 22 January 2018, 16:00 h

Room H 522 (5th floor), Fakultät für Physik der LMU, Schellingstraße 4, München

