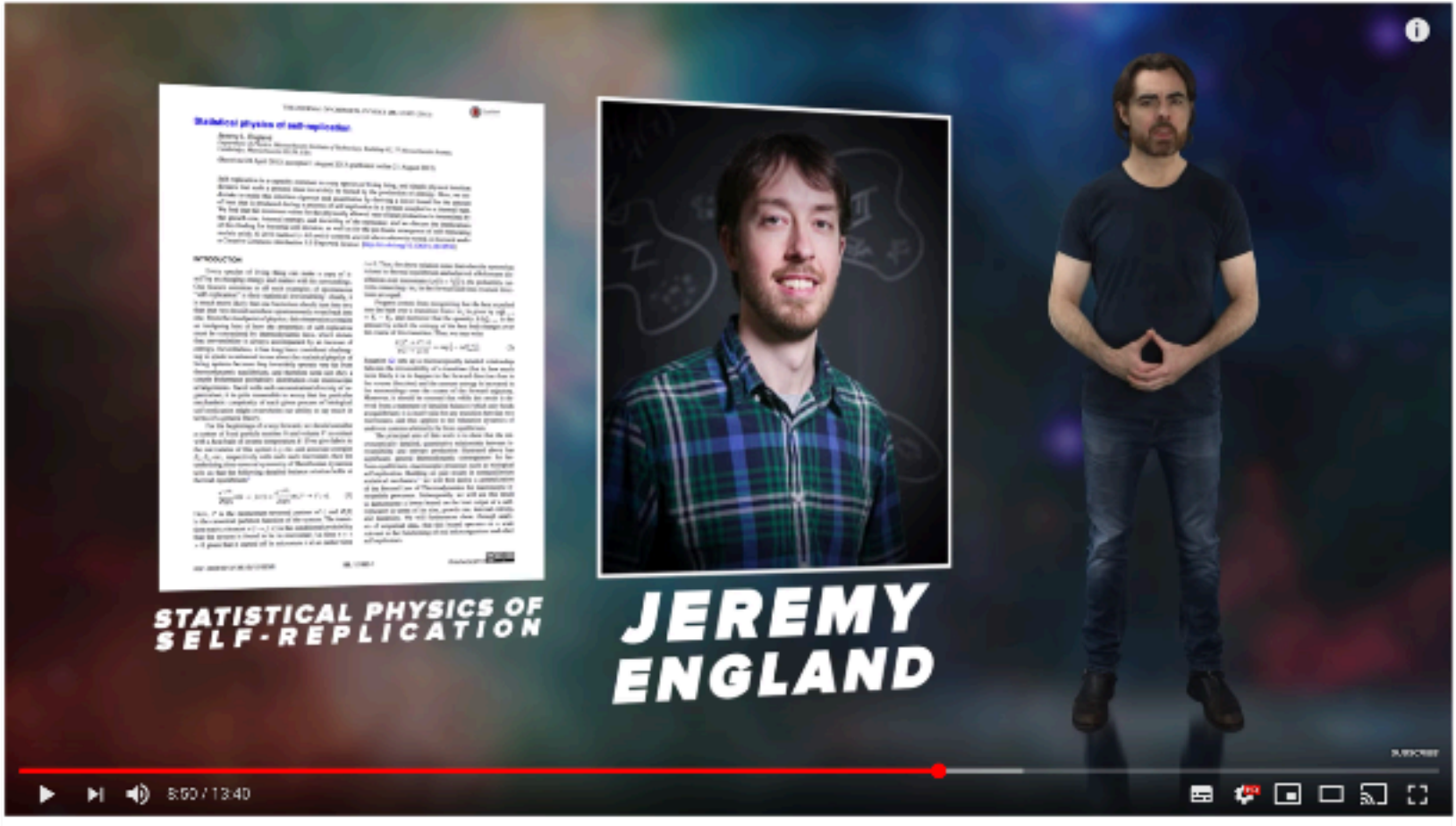
IN·NOMINE·PATRIS

Radboud University Nijmegen

Natural Computation in Physics >> Dissipative Systems


49



The Physics of Life (ft. It's Okay to be Smart & PBS Eons!) | Space Time

456,800 views

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Physics of Life - How does complexity emerge under 2nd Law of Thermodynamics?

- Open systems >> Continuous flow of energy >> Energy gradients >> Pattern formation

- High energy / ordered states need to be dissipated as heat / disorder (2nd Law)

- However, stable patterns emerge that eventually self-replicate >> Natural selection mechanism

- Self-replicating systems turn out to be efficient order / energy dissipators! (e.g. exponential growth)

https://youtu.be/GcfLZSL7YGw

England, J. L. (2013). Statistical physics of self-replication. *The Journal of chemical physics*, *139*(12), 121923. https://doi.org/10.1063/1.4818538

“*… regard the physical world as made of information, with energy and matter as incidentals*” -Bekenstein (2003, p.59)

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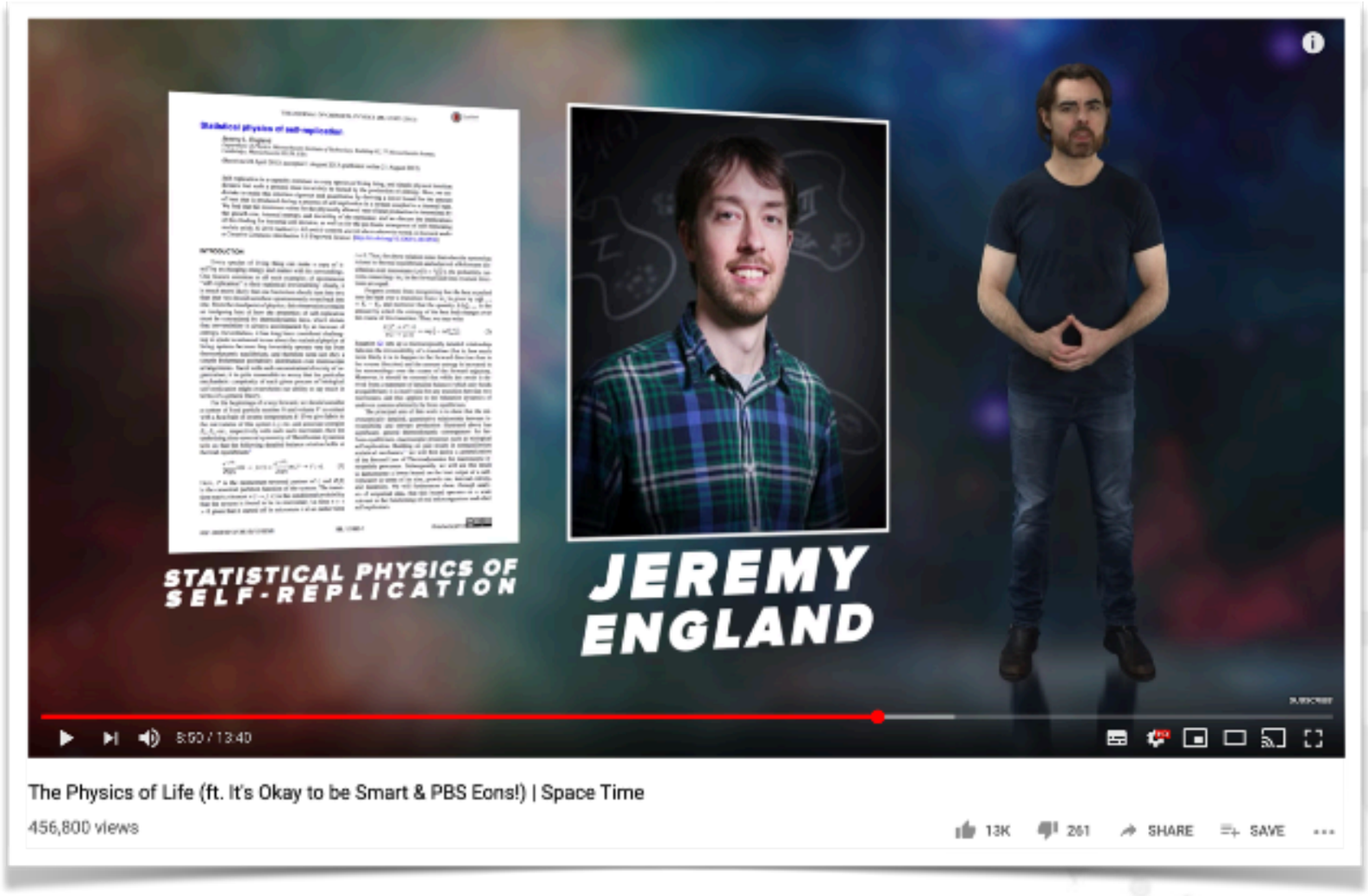

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Temporal properties of variability: Sample entropy