



# Physics Colloquium

Tuesday, 22 June 2021 at 17:00

Dr. Viola Priesemann

MPI Dynamik und Selbstorganisation, Göttingen

## Statistical Physics of Spreading Dynamics: From neural networks to COVID-19

How can we infer the spreading of activity and information in neural networks if only a tiny fraction of the system can be observed? And how can we infer the spread of SARS-CoV-2 in a population? We recapitulate the basic principles of spreading dynamics, and investigate its role in shaping collective computation in neural networks. We then use this basis to investigate COVID-19 mitigation strategies. In particular, we demonstrate a tipping point in the test-trace-isolate strategies, which incurs (transient) supra-exponential growth. Avoiding to cross that tipping point could greatly facilitate the control of COVID-19.

