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Biographical information:

Simon K. Schnyder is originally a theoretical physicist. He obtained a PhD from the University of Düsseldorf, went on to perform postdoctoral research at Kyoto University, and is now an Assistant Professor at the Institute of Industrial Science at the University of Tokyo. He uses analytical and computational methods to tackle problems in soft matter physics and social systems. Earlier, he worked on anomalous transport in heterogeneous media. These days, he is most interested in self-organised collective dynamics, such as that of cellular tissues, or societies reacting to an epidemic threat.

Title: Self-organised social distancing in epidemics

Abstract

Behavioural change such as social distancing or quarantining of infected individuals can affect the spread of infectious diseases. In models, individuals are typically treated either as passive agents which need to be forced to change their behaviour in response to the disease or their spontaneous behavioural response is assumed to be motivated by self-interest. In such frameworks, people show little concern for others and a significant reduction in social activity such as quarantining requires government enforcement.

However, people are likely to be at least weakly altruistic and thus interested in protecting others. Unfortunately, little is known theoretically about how such altruism affects the course of epidemics. Here, we show that even extremely weakly altruistic populations can be expected to isolate when infected with a dangerous disease in a self-organised way, substantially suppressing epidemic spread. We hope that communicating this insight will have an effect on decision making by populations and governments in future epidemics.