iTHEMS Colloquium

Measuring evolutionary forces of cultural change

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Okochi Hall (Bldg. C32) & via Zoom
at RIKEN Wako Campus

Zoom Registration

I will describe how to measure the forces that drive cultural change, using inference tools from evolutionary theory. We study time series data from large corpora of parsed English texts to identify what drives language change over the course of centuries. We also measure frequency-dependent effects in time series of baby names and purebred dog preferences. The form of frequency dependence we infer helps to explain the diversity distribution of names, and it replicates across the United States, France, Norway and the Netherlands. We find different growth laws for male versus female names, attributable to different rates of innovation, whereas names from the bible enjoy a genuine advantage at all frequencies. Frequency dependence emerges from a host of underlying social and cultural mechanisms, including a preference for novelty that recapitulates fashion trends in dog owners. Studying culture through the lens of evolutionary theory provides a quantitative account of social pressures to conform or to be different; and it provides inference tools that may be used in biology as genetic and phenotypic time series are increasingly available.