Contribution ID: **10** Type: **not specified**

Two classes of highly effective discretisations

Thursday, 20 June 2024 09:00 (45 minutes)

Chebyshev and Fourier approximation are effective and now well-used ways to discretise analytic full-branch uniformly expanding dynamics. They are simple, easy to implement and clearly have a lot of room to be extended. This talk will present two such extensions.

The first looks to the burgeoning applied area of Koopman operator numerics, where Koopman operators are approximated by least-squares with respect to a general sampling measure (e.g. the SRB measure). I will show that for trigonometric function dictionaries that this discretisation is nearly as accurate as Fourier Galerkin methods, and fairly good estimates can be even obtained purely from time series data, when done carefully.

The second will be to approximate Koopman or transfer operators of analytic hyperbolic maps (and more generally Anosov maps). This enables rigorous and highly accurate estimates of spectral data, including of general Anosov flows.

Presenter: WORMELL, Caroline (Australian National University)