1164-37-119 **Caroline L Wormell*** (wormell@lpsm.paris). *Rigorously validated estimation of statistical properties of expanding maps.*

Full-branch uniformly expanding maps and their long-time statistical quantities serve as common models for chaotic dynamics, as well as having applications to number theory. I will present an efficient method to compute important statistical quantities such as physical invariant measures, which can obtain rigorously validated bounds. This is accomplished via Chebyshev Galerkin discretisation of the transfer operators of these maps, which proves to be highly efficient, with up to exponential convergence in the order of discretisation.

As an application, I present an effective extension of these methods to non-uniformly expanding maps of Pomeau-Manneville type. These maps have hitherto been highly resistant to numerical study. I also present a surprising discovery of a homoclinic tangency in a globally-coupled chaotic system, obtained using these methods. (Received January 15, 2021)