Multifractal spectra for the invariant part of multiple mixing level sets.

Joerg Schmeling
Lund university

Abstract

(joint with A. Fan and M. Wu) We will investigate the maximal (in the sense of entropy) invariant measures sitting on the level sets \( \{ x : \lim \sum F(T^{i_1}x, t^{i_2}x, \ldots, t^{i_n}x) = \alpha \} \). This is the converse question to the classical problem for which measures multiple mixing occurs. We will present some first results and open problems. In particular we introduce several other related spectra, i.e. the maximizing measures for level sets of multiple integrals and level sets for \( U \)-statistics. One of the striking observations is that in difference to classical multifractal analysis several kinds of phase transitions occur.