Monday Short Talks Timetable

2:30-2:55: R. Moore, *Properties of the Birhhoff Spectra for the generic continuous functions on a shift space.*
This is a joint work with Zoltán Buczolich and Balázs Maga. Let (Ω, σ) be the full-shift of two alphabets, and f be a continuous, real-valued function on it. Let L_f be the set of all of the possible limiting values of the Birkhoff averages of f, i.e.

$$L_f := \left\{ \alpha \in \mathbb{R} : \exists\, \omega \in \Omega \text{ such that } \lim_{N\to\infty} \frac{1}{N} \sum_{n=0}^{N-1} f(\sigma^n \omega) = \alpha \right\}.$$

For each $\alpha \in L_f$, we define the level set

$$E_f(\alpha) := \left\{ \omega \in \Omega : \lim_{N\to\infty} \frac{1}{N} \sum_{n=0}^{N-1} f(\sigma^n \omega) = \alpha \right\},$$

and we define a function $S_f : \mathbb{R} \to \mathbb{R}$, which we refer to as the Birkhoff spectra, as follows:

$$S_f(\alpha) := \begin{cases} \dim_H(E_f(\alpha)) & \alpha \in L_f, \\ 0 & \alpha \notin L_f, \end{cases}$$

where $\dim_H$ is the Hausdorff dimension.

In this talk, we will discuss shapes and properties of the Birkhoff spectrum S_f for generic/typical continuous functions f in the sense of Baire category. In particular, we will be interested in the behavior of the spectrum near the boundary of L_f, such as the continuity and the values of one-sided derivatives. For more information, please refer to: https://arxiv.org/abs/1905.06001arXiv:1905.06001.

3:00-3:25: J. Leppanen, *Quasistatic dynamics with intermittency*
Quasistatic dynamical systems (QDS), introduced by Dobbs and Stenlund, model dynamics that transform slowly over time due to external influences. They are generalizations of conventional dynamical systems and belong to the realm of deterministic non-equilibrium processes. The main focus of this talk will be on a particular class of QDSs where the time-evolution is specified by intermittent maps with time-dependent parameters. After defining the model I will present results on its long-term statistical behavior, including a functional central limit theorem.

3:30-3:55: K.Akurugodage, *Higher order asymptotics for Large Deviations*
For sequences of weakly dependent random variables, we obtain asymptotics of all orders for the Large Deviation Principle in the form of an asymptotic expansion. We apply our results to many examples including ergodic sums of smooth expanding maps subshifts of finite type. In addition, we obtain similar expansions for stochastic processes, and establish them for additive functionals of processes generated from SDEs satisfying the Hrmander condition. This is joint work with Pratima Hebbar.