

Conference schedule for Schocksymposium 2022

Wednesday, May 25

Time	Seminar title	Speaker(s)	Abstract (optional)
09:30-09:35	Opening speech	Lars Bergström	
09:35-09:45	Tribute	Stanislav Smirnov	
09:45-10:40	Rational functions and conformal field theory	Nikolai Makarov	<p>The theory of commuting SLEs is explained from the point of view of conformal field theory. In the “quasi-classical” limit ($\kappa \rightarrow 0$) the Loewner dynamics is described as a flow of real rational functions. This flow can be identified as the classical Calogero-Moser integrable system restricted to a particular submanifold of the phase space that is carved out by the Lax matrix.</p> <p>Joint work with Tom Albers and Nam-Gyu Kang.</p>
10:40-11:00	Coffee Break		
11:00-12:00	Pointwise convergence of scattering data	Alexei Poltoratski	<p>The scattering transform for the Dirac system of differential equations is commonly viewed as a non-linear version of the classical Fourier transform.</p> <p>This connection leads to natural questions on finding analogs of various properties of the Fourier transform in non-linear settings. In my talk I will give a short overview of that area and present a version of Carleson’s theorem on pointwise convergence in the non-linear</p>
12:00-13:00	Lunch at IML (Gula villan)		
13:00-13:30	Coffee Break		
13:30-14:30	Can you (quasisymmetrically) compress the Brownian graph?	Ilia Binder	<p>Conformal dimension of a set is the minimal Hausdorff dimension of its quasymmetric image. In the talk, I will discuss the conformal dimensions of various deterministic and stochastic sets, such as Bedford-McMullen sets and self-affine Fractal Percolation Clusters. I will show that the Brownian graph is minimal, i.e. its conformal dimension is equal to $3/2$, its Hausdorff dimension.</p> <p>The talk is based on joint works with Hrant Hakobyan (Kansas State) and Wenbo Li (Toronto).</p>
14:30-15:00	Group photo of participants		
14:30-15:00	Coffee Break		
15:00-16:00	Of crystals and corals	Stanislav Smirnov	<p>There are many real-world processes exhibiting fractal growing shapes - from mineral deposition and coral growth to lightning strikes, and in many of them growth is related to diffusion properties. We will discuss two seminal models: Diffusion Limited Aggregation was introduced by Witten and Sanders in 1981 and was generalized to Dielectric Breakdown Model by Niemayer et al shortly afterwards. Numerically they approximate very well a wide range of physical phenomena.</p> <p>However, despite a very simple definition (DLA cluster grows by attaching particles undergoing Brownian motion when they hit the aggregate), very little is understood today, and even less is known rigorously - essentially, only the famous Harry Kesten upper bound on the DLA growth.</p> <p>We will try to show the flavor of these models and present some new results. Based on joint work with Ilia Logez.</p>
16:00-18:00	Break		