Speaker: Miklos Abert

Title: Sofic entropy and finite automata

Monday, Tuesday, Thursday (March 12, 13 and 15 , 2018)

10:00-11:15 Lecture
11:15-11:45 Coffee break
11:45-13:00 Lecture

Classical sofic entropy theory, a la Lewis Bowen, counts the number of good colorings (models) on a sofic approximation to define the basic invariant of interest. In our approach with Benjy Weiss (also independently investigated by Tim Austin) one models the infinite process by a random coloring and uses classical Shannon's entropy to define sofic entropy. This approach makes the proofs of some of the fundamental theorems more transparent. In particular, I will present a short and self-contained proof of Bowen's theorem that isomorphic iid processes over a sofic group have the same base entropy. We conjecture with Balazs Szegedy that for a fixed finite automata A, the normalized Shannon entropy of the push-forward of the iid coloring by A converges for Benjamini-Schramm convergent sequences. An affirmative answer would imply the existence of mod-p L^2 Betti numbers and a Luck approximation theorem. Some partial results have been proved for hyperfinite graph sequences and random regular graphs (by Andras Meszaros), but the general conjecture is still wide open.