

Department of Mathematics, BGU

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# BGU Probability and Ergodic Theory (PET) seminar

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*On Thursday, November 19, 2020*

*At 11:10 – 12:00*

*In Online*

Ariel Yadin (Ben-Gurion University)

will talk about

## **Non-trivial phase transition in percolation**

Abstract: In 1920 Ising showed that the infinite line  $\mathbb{Z}$  does not admit a phase transition for percolation. In fact, no “one-dimensional” graph does. However, it has been asked if this is the only obstruction. Specifically, Benjamini & Schramm conjectured in 1996 that any graph with isoperimetric dimension greater than 1 will have a non-trivial phase transition.

We prove this conjecture for all dimensions greater than .4. When the graph is transitive this solves the question completely, since low-dimensional transitive graphs are quasi-isometric to Cayley graphs, which we can classify thanks to Gromov’s theorem. This is joint work with H. Duminil-Copin, S. Goswami, A. Raufi, F. Severo.

**Please Note the Unusual Place!**