

Department of Mathematics, BGU

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# Probability and ergodic theory (PET)

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*On Tuesday, April ,14 2015*

*At 10:50 – 12:00*

*In Math 101-*

Eliran Subag (Weizmann Institute)

will talk about

## **The complexity of spherical p-spin models - a second moment approach**

Abstract: The Hamiltonian of the spherical p-spin spin glass model is a smooth Gaussian field on the N-dimensional sphere. Let  $\text{Crt}_N(u)$  denote the number of its critical points below  $Nu$ . In a recent study Auffinger, Ben Arous, and Cerny computed the mean of  $\text{Crt}_N(u)$  and its exponential growth rate, as N goes to infinity. Our work focuses on the computation of the second moment. We prove that the ratio of second to first moment squared goes to ,1 as N goes to infinity. An immediate consequence of this is that  $\text{Crt}_N(u)$  concentrates around its mean:  $\text{Crt}_N(u)$  normalized by its mean goes to 1 in  $L^2$  and thus in probability. Joint work with Ofer Zeitouni.