Counting self-avoiding paths on a supercritical percolation cluster

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Resumo/Abstract:
The self-avoiding walk on Zd has been introduced by Flory and Ott as a natural model for polymers. In spite of the apparent simplicity of the model, mathematicians understanding is very far of being complete, in particular in low dimension ($d = 2, 3, 4$).

For this reason the disordered version of the model: Self-avoiding walk in a random potential has not received much attention from the mathematical community. On the contrary some conjectures on the model are present in the Physics litterature.

In this talk, we focus on the study of the partition function in the case of SAW on a (quenched realization of) a supercritical percolation cluster for $d = 2$. We show that the number of path grows exponentially slower than its expectation for all $p \geq p_c$. Our proof is robust, and can adapt to change of lattice and model.