Target audience: doctoral students, researchers and Professors in Mathematic.

Abstract:

The $K_4$ crystal is the most symmetric realization in space of the maximal abelian covering graph of the complete graph $K_4$. It is observed that the $K_4$ crystal has the "very strong isotropic property" and the "energy minimizing property" among all periodic realizations which are only shared by the diamond crystal. Having these examples in mind, I will discuss how symmetry and energy of general crystals are related to asymptotic behavior of random walks.