Department of Mathematics, BGU

Combinatorics Seminar

On *Tuesday, May ,14 2019*

At *13:00 – 14:00*

In *101-*

Roman Glebov (BGU)

will talk about

The number of Hamiltonian decompositions of regular graphs.

Abstract: A Hamiltonian decomposition of Γ is a partition of its edge set into disjoint Hamilton cycles. One of the oldest results in graph theory is Walecki's theorem from the 19th century, showing that a complete graph K_n on an odd number of vertices n has a Hamiltonian decomposition. This result was recently greatly extended by Kuhn and Osthus. They proved that every r-regular n-vertex graph Γ with even degree $r=cn$ for some fixed $c>1/2$ has a Hamiltonian decomposition, provided $n=n(c)$ is sufficiently large. In this talk we address the natural question of estimating $H(\Gamma)$, the number of such decompositions of Γ. The main result is that $H(\Gamma)=r^{(1+o(1))nr/2}$ In particular, the number of Hamiltonian decompositions of K_n is $n^{(1+o(1))n^2/2}$.

Joint work with Zur Luria and Benny Sudakov.