1086-60-2741   **Miklos Abert**, **Endre Csoka**, **Gabor Lippner*** (`lippner@math.harvard.edu`) and **Tamas Terpai**. *Invariant perfect matchings in Cayley graphs via short augmenting paths in expanders.* Preliminary report.

We show that given a partial matching in a large finite d-regular expander graph, there is always a short augmenting path. Our main application is the construction of factor of IID perfect matchings in expander Cayley graphs. This answers a question asked by Lyons and Nazarov, who settled the bipartite case in 2011.

We also prove that every infinite, connected vertex transitive graph has a perfect matching. This in turn implies every Cayley graph has a translation invariant probability measure on the set of its perfect matchings. (Received September 25, 2012)