1067-05-333 **Eddie Cheng*** (echeng@oakland.edu), Department of Mathematics & Statistics, Oakland University, Rochester, MI 48309, and **Laszlo Liptak**, **Marc J Lipman**, **Philip Hu** and **Roger Jia**. *Matching preclusion and conditional matching preclusion problems for regular graphs.*

Let G be r-regular even graph. A matching preclusion set is a set of edges whose deletion results in a graph with no perfect matchings; the size of an optimal set is the matching preclusion number, $\mathrm{mp}(G)$. If G is bipartite, then Hall's Theorem implies that $\mathrm{mp}(G) = r$. Plesník proved that this is true in general if G is $(r-1)$-edge-connected. A trivial matching preclusion set is a set of edges incident to a single vertex v. G is super matched if every optimal matching preclusion set is trivial. A conditional matching preclusion set is a set of edges whose deletion results in a graph with no isolated vertices and no perfect matchings; the size of such an optimal set is the conditional matching preclusion number, $\mathrm{mp}_1(G)$. A trivial conditional matching preclusion set can be constructed as follows: Take any 2-path $u - v - w$ and consider $\delta(u) \cup \delta(w) \setminus \{(u,v),(v,w)\}$. G is conditionally super matched if every optimal matching preclusion set is trivial. In this talk, we consider sufficient conditions that are in the same spirit as Plesník's Theorem for G to be super matched, for $\mathrm{mp}_1(G)$ to attain the trivial upper bound, and for G to be conditionally super matched. (Received August 23, 2010)