1116-VF-2187 **Christine T Cheng** and **Will Rosenbaum*** (wrosenbaum@math.ucla.edu). *Stable Matchings with Bounded Preferences.* Preliminary report.

An instance I of the Stable Marriage Problem consists of a finite bipartite graph, $G = (M \cup W, E)$, where each vertex has *preferences* in the form of a linear order over its neighbors. The goal is to find a matching μ which is *stable* in the sense that no pair $(m, w) \in E$ mutually prefer each other to their partners in μ. In their seminal work, Gale and Shapley prove that such a stable matching exists for any instance I.

The set of all stable matchings forms a distributive lattice, which can be realized as the lattice of order ideals of the *rotation poset* $\Pi(I)$. We prove that even if G is restricted to have maximum degree 3, given any finite poset $\mathcal{P}$, one can efficiently construct an instance I such that $\Pi(I) \simeq \mathcal{P}$. Thus, the distributive lattice of stable matchings can be arbitrary for bounded degree graphs. Our construction—which extends a classical result of Irving and Leather—has applications to computational complexity and economics. (Received September 22, 2015)