1116-11-2 **Cindy Tsang*** (`cindytsy@math.ucsb.edu`). *Realizable Classes and Embedding Problems.* Preliminary report.

Let K be a number field with ring of integers $\mathcal{O}_K$ and let G be a finite group. Given a finite Galois extension L/K with $\mathrm{Gal}(L/K) \simeq G$, the ring of integers $\mathcal{O}_L$ in L is an $\mathcal{O}_K G$-module. By a classical theorem of Noether, one knows that $\mathcal{O}_L$ is locally free over $\mathcal{O}_K G$ if and only if L/K is tame, in which case $\mathcal{O}_L$ defines a class $[\mathcal{O}_L]$ is the locally free class group $\mathrm{Cl}(\mathcal{O}_K G)$ of $\mathcal{O}_K G$. We call such a class *realizable* and we consider the set

$$R(\mathcal{O}_K G) := \{[\mathcal{O}_L] : L/K \text{ is a tame Galois extension with } \mathrm{Gal}(L/K) \simeq G\}$$

of all realizable classes. In the case that G is abelian, a result of McCulloh states that $R(\mathcal{O}_K G)$ is a subgroup of $\mathrm{Cl}(\mathcal{O}_K G)$. In this paper, we show that there is in fact a close connection between the group structure of $R(\mathcal{O}_K G)$ and the study of embedding problems. (Received September 13, 2015)