1046-37-704 **David Constantine*** (constand@umich.edu), Department of Mathematics, 2074 East Hall, 530 Church St, Ann Arbor, MI 48109. *On Compact Clifford-Klein Forms of* $SL_{n-2}(\mathbb{R})\backslash SL_n(\mathbb{R})$. Preliminary report.

The problem of compact Clifford-Klein forms is to determine all pairs of Lie groups (H, J), where J is a closed subgroup of H, which have a compact quotient $J\backslash H/\Gamma$ by a discrete subgroup of H that acts properly discontinuously on $J\backslash H$. When J is noncompact many cases of this problem are open. The basic case of $SL_{n-k}(\mathbb{R})\backslash SL_n(\mathbb{R})$ is not completely solved; the main results are due to Zimmer and collaborators for $k \geq 3$ and to Benoist for $k = 1$ and n odd, both showing that compact forms do not exist. In this talk I will present the following result for $k = 2$. Any compact form is given by the following construction: there is a subgroup L of $SL_n(\mathbb{R})$ containing a cocompact lattice Λ such that $SL_{n-2}(\mathbb{R})\backslash SL_n(\mathbb{R})/\Gamma$ is naturally identified with $(L \cap SL_{n-2}(\mathbb{R}))\backslash L/\Lambda$. This confirms a remark by Margulis that all known constructions of compact forms for reductive J are based on the existence of such a subgroup and reduces the compact form question to the algebraic question of whether such a subgroup L exists. This is a preliminary report on ongoing research. (Received September 10, 2008)