1106-11-2441 **Kevin M Mugo*** (`kevin.mugo@gmail.com`), W.Lafayette, IN 47906. *Mod 4 Galois Representations From Elliptic Curves and a Certain Brauer-Type Embedding Problem.*

Let $\overline{\rho}_{E,4}$ be a surjective Galois representation, induced by the action of G_K on the 4-torsion points of an elliptic curve E, with invariant j_0. We show that the unique S_4 field extension contained in $K(E[4])$ is the splitting field of the principal quartic $q(r) = r^4 + \dfrac{32}{j_0} + \dfrac{4}{j_0}$. We show that L/K is a principal, quartic extension precisely when a certain Brauer-Severi variety has a K-rational point. When L/K is principal, and M/K is its normal closure, we show that the solvability of the embedding problem $2S_4^+ \longrightarrow \mathrm{Gal}(M/K)$ is completely determined by the discriminant $d_{L/K}$. Moreover, we will show that if L/K is principal and the Hilbert symbol $(-2, -d_{L/K})$ is trivial, then the embedding problem $2S_4^+ \longrightarrow \mathrm{Gal}(M/K)$ is solvable. (Received September 16, 2014)