1072-17-228 **Quincy Loney*** (quincy.loney@cortland.edu) and **Alex J Feingold** (alex@math.binghamton.edu). *Decomposition of level-1 representations of $D_4^{(1)}$ with respect to its subalgebra $G_2^{(1)}$ in the spinor construction.* Preliminary report.

Feingold, Frenkel, Ries (1991) gave a spinor construction of the vertex operator para-algebra $V = V^0 + V^1 + V^2 + V^3$, whose summands are 4 level-1 irreps of $D_4^{(1)}$. The triality group $S_3 =< \sigma, \tau >$ in $Aut(V)$ was constructed, preserving V^0 and permuting V^i, $i = 1, 2, 3$. V is $Z/2$-graded and V_n^i denotes the n-graded subspace of V^i. Vertex operators $Y(v, z)$ for $v \in V_1^0$ represent $D_4^{(1)}$ on V, while those for which $\sigma(v) = v$ represent $G_2^{(1)}$. V decomposes into $G_2^{(1)}$ irreps, first decomposing with respect to the intermediate algebra $B_3^{(1)}$ represented by $Y(v, z)$ for $\tau(v) = v$. There are three vectors, $w_i \in V_2^0$ such that $Y(w_i, z)$ represents the Virasoro algebra (Sugawara construction) from the three algebras D_4, B_3, G_2. These give two commuting coset Virasoro constructions from $w_1 - w_2$ and $w_2 - w_3$, with $c = 1/2$ and $c = 7/10$, resp., the first commuting with $B_3^{(1)}$, the second commuting with $G_2^{(1)}$. This gives the space of highest weight vectors for $G_2^{(1)}$ in V as tensor products of irreducible Vir modules $L(1/2, h_1) \otimes L(7/10, h_2)$. (Received June 28, 2011)