1086-22-2536 **Brandon Samples*** (brandon.samples@gcsu.edu), Georgia College & State University, Department of Mathematics, Campus Box 017, Milledgeville, GA 31061. *Components of Springer Fibers for the Exceptional Groups G_2 and F_4.*

Let G be the complex connected simply connected simple Lie group of type G_2 or F_4. Let K denote the fixed point subgroup relative to an involution of G that is lifted from a Cartan involution. We give a description of certain components of Springer fibers associated to closed K-orbits contained in the flag variety of G. Then we will describe certain multiplicity polynomials associated to discrete series representations of the real form G_2^2 of G_2 and the two real forms F_4^4 and F_4^{-20} of F_4. The goals for this paper are motivated by the descriptions of Springer fiber components for type $SU(p,q)$ described in a paper of Barchini and Zierau. (Received September 25, 2012)