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**Monty McGovern\*** (mcgovern@math.washington.edu), Department of Mathematics, Box 354350, University of Washington, Seattle, WA 98195. *Singularities of  $K$ -orbits in flag varieties.*

Let  $G$  be a complex reductive group,  $K$  a symmetric subgroup. We study closures of  $K$ -orbits in the flag variety  $G/B$ , seeking to characterize which such closures are smooth or rationally smooth in terms of a pattern avoidance criterion on a parameter for the orbit, similar to known criteria for smoothness or rational smoothness of Schubert varieties. We will concentrate on the case  $G = GL_n, K = O_n$  but mention a couple of other ones of classical type along the way. (Received June 24, 2008)