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Laura Escobar and **Benjamin J. Wyser*** (bwyser@okstate.edu), Department of Mathematics, Oklahoma State University, 401 MSCS, Stillwater, OK 74078, and **Alexander Yong**. *K-orbit closures and Barbasch-Evens-Magyar varieties*. Preliminary report.

The closures of orbits of a symmetric subgroup on the flag manifold are important objects in representation theory, and are a sort of generalization of Schubert varieties. In some cases, such orbit closures admit explicit resolutions of singularities (first considered by Barbasch and Evens) very similar in spirit to the well-known Bott-Samelson resolutions of Schubert varieties. Roughly speaking, such a resolution corresponds to the choice of a closed orbit and a reduced word for a certain Weyl group element. If one drops the requirement that the word be reduced, one obtains a larger class of smooth varieties which map finite-to-one to K -orbit closures. I will describe joint work with Laura Escobar and Alexander Yong where we consider these varieties (which we call Barbasch-Evens-Magyar varieties, or BEM varieties) in some detail. Among the results I will discuss are a description of BEM varieties as iterated fiber products, which leads to a very concrete diagrammatic description of them in type A . I will also discuss some combinatorial results on the moment polytopes of BEM varieties, particularly in the case where the symmetric subgroup in question is $GL_p \times GL_q$. (Received September 27, 2017)