1119-14-186 **Alexander Woo**, **Benjamin J. Wyser*** (bwyser@illinois.edu) and **Alexander Yong**.
Mars-Springer subvarieties of symmetric orbit closures and interval pattern combinatorics. Preliminary report.

Consider the closure of an orbit of the symmetric subgroup $GL_p \times GL_q$ on the flag variety GL_{p+q}/B. We consider the question of when such an orbit closure possesses one of a certain class of properties P (examples being P="smooth", "normal", "Gorenstein", among others), in terms of the combinatorics of a symbol called a "clan" which parametrizes the orbit. The main result is that such properties can always be characterized by a combinatorial notion called interval pattern avoidance. The proof of this is essentially geometric, relying on an isomorphism between certain locally closed subvarieties or "slices" of the orbit closures which we call Mars-Springer varieties. (Received February 15, 2016)