1077-05-2890 **Michael Andrew La Croix*** (malacroi@alumni.uwaterloo.ca). *Jack Symmetric Functions and the Non-Orientability of Rooted Maps.*

A generating series for rooted orientable maps with respect to vertex- and face-degree sequences can be expressed in terms of Schur symmetric functions. A parallel construction gives the corresponding generating series for all rooted maps in terms of zonal polynomials.

Goulden and Jackson conjectured that an analogous expression involving Jack symmetric functions is the generating series for all rooted maps, with respect to an unknown invariant, marked by a shifted Jack parameter, that measures departure from orientability. A consideration of a partial differential equation satisfied by a specialization of this series suggests a new family of invariants, defined recursively in terms of root edge deletion. Analyzing maps with respect to these invariants may provide combinatorial insight into properties of Jack symmetric functions that have been observed previously in an algebraic setting. (Received September 22, 2011)