1020-05-92 **Art M Duval**, **Caroline Klivans** and **Jeremy L Martin*** (jmartin@math.ku.edu), Department of Mathematics, 405 Snow Hall, 1460 Jayhawk Boulevard, Lawrence, KS 66045. *A simplicial matrix-tree theorem.* Preliminary report.

Building upon the work of G. Kalai and R. Adin, we extend the concept of a spanning tree from graphs to simplicial complexes. For all complexes Δ satisfying a mild technical condition, we show that the simplicial spanning trees of Δ can be enumerated using its Laplacian matrices, generalizing the matrix-tree theorem. As in the graphic case, replacing the Laplacian with a weighted analogue yields more refined combinatorial information about simplicial spanning trees. There is strong evidence that the resulting weighted tree enumerator factors nicely when Δ is a shifted or matroid complex. (Received August 17, 2006)