1145-05-771 **Thomas W. Tucker*** (ttucker@colgate.edu), 406 Williston Rd, PO Box 163, Sagamore Beach, MA 02562, and **Jonathan L. Gross** and **Toufik Mansour**. *Log-Concavity for Graph Imbedding Polynomials.* Preliminary report.

The *genus polynomial* for a finite graph G is the generating function $g_G(z) = \Sigma a_i z^i$, where a_i is the number of imbeddings of G in the oriented surface of genus i. It has been conjectured that this polynomial is log-concave. If we begin instead with a specific imbedding (or ribbon graph), of G in a closed surface, orientable or not, there are other polynomials we can study. If the imbedding is orientable, there is the partial duality polynomial discussed in the previous talk. There is also the partial Petrie duality polynomial, where instead of looking at the partial dual over all choices of edge-induced subgraphs A, we instead give each of the edges of A an extra twist. Of course, now the imbedding may be non-orientable, so we count partial Petrie duals with given Euler genus, possibly partitioning by orientability and non-orientability. A natural question for all of these polynomials is whether they are log-concave. (Received September 14, 2018)