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Martin Skoviera* (skoviera@dcs.fmph.uniba.sk), Department of Computer Science, Comenius University, Bratislava, 842 48, and **Michal Kotrbčík**. *Locally maximal embeddings of graph.*

It is well known that the genera of orientable surfaces upon which a given graph has a 2-cell embedding form a contiguous interval of integers. While determining the minimum genus is in general difficult, there exists a polynomial-time algorithm for determining the maximum genus of an arbitrary graph. Beyond this, not very much is known about the distribution of embedding genera of general graphs. In this talk we investigate a new class of embeddings called locally maximal embeddings. Their characteristic property is that changing the position of any single edge in the local rotation at any vertex gives rise to an embedding with the same or lower genus. We describe various properties of these embeddings, some of them indicating surprising differences from maximal embeddings. In addition, we determine the minimum genus of a locally maximal embedding for several classes of graphs, including the complete graphs, complete bipartite graphs and n -cubes. (Received September 22, 2011)