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New York, NY 10027. *Algorithm for the Genus Distribution of a 3-Regular Outerplanar Graph.*

We present a quadratic-time algorithm for calculating the sequence of numbers  $g_0, g_1, g_2, \dots$  of topologically distinct ways to draw a 3-regular *outerplanar graph*  $G$  (without edge-crossings) on each of the respective orientable surfaces  $S_0, S_1, S_2, \dots$ . The total number of ways over all surfaces is  $2^n$ , where  $n$  is the number of vertices of  $G$ . The key algorithmic features are a characterization of 3-regular outerplanar graphs in terms of *plane trees* and a subsequent synthesis of the graphs by sequences of *edge-amalgamations* of building-block graphs according to *post-order traversals* of those plane trees. (Received July 11, 2010)