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Yichao Chen* (ycchen@hnu.edu.cn), Department of Mathematics, Hunan University, Yuelv Shan, ChangSha, Hunan 410082, Peoples Rep of China, and **Jonathan L. Gross** (gross@cs.columbia.edu), Department of Computer Science, Columbia university, New York city, NY 10027. *An Euler-genus approach to the calculation of the crosscap-number polynomial.*

In 1994, J Chen, J Gross, and R. Rieper demonstrated how to use the rank of Mohar's overlap matrix to calculate the crosscap-number distribution, that is, the distribution of the embeddings of a graph in the non-orientable surfaces. That has ever since been by far the most frequent way that these distributions have been calculated. This paper introduces a way to calculate the Euler-genus polynomial of a graph, which combines the orientable and the non-orientable embeddings, without using the overlap matrix. The crosscap-number polynomial for the non-orientable embeddings is then easily calculated from the Euler-genus polynomial and the genus polynomial. (Received September 07, 2017)