

Genus of circular amalgamations of graphs

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The talk is concerned with genus of ring-like graphs obtained by repeatedly amalgamating complete or complete bipartite graphs over one vertex in a path-like manner, and then identifying two vertices, one from each graph at the end of the path. A theorem of Decker, Glover, and Huneke easily yields that the genus of the resulting graph is either the sum of the genera of the involved graphs, or the sum minus 1. However, to determine the genus exactly seems to be a rather difficult problem, which requires revising several classical results of topological graph theory. In the talk I will discuss these results and their interplay, and indicate what would be sufficient to obtain a complete solution of the problem.