**The genus g=2 problem- A solution of the Persistent current for the genus g=2 -An application to the Edge currents in Graphene**[1] DAVID SCHMELTZER, CCNY — We report the first solution of Persistent currents for genus $g = 2$ Aharonov-Bohm coupled rings which form a character "8" structure. For two large coupled rings with equal fluxes, we found that the persistent current in the two coupled rings is equal to that in a single ring. For opposite fluxes the energy has a chaotic structure. This results are obtained within an extension of Dirac's second class constraints.

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