

1062-20-59

Martin R. Bridson and **Karen Vogtmann*** (vogtmann@math.cornell.edu), Department of Mathematics, Cornell University, 503 Malott Hall, Ithaca, NY 14853-4201. *Homomorphisms from $Out(F_n)$ to $Out(F_m)$.*

Every finite subgroup of the group $Out(F_m)$ of outer automorphisms of a free group can be realized as a group of automorphisms of a finite connected graph with Euler characteristic $1 - m$. This fact is useful for determining whether there are any interesting homomorphisms from $Out(F_n)$ to $Out(F_m)$ for $m \neq n$. If $m < 2n - 1$ it turns out that every such homomorphism has image of order at most 2; the proof of this involves analyzing exactly which graphs with Euler characteristic $1 - m$ can realize rank n symmetric and hyperoctahedral groups. (Received July 22, 2010)