Realisation of groups as automorphism groups of maps and hypermaps

Gareth A. Jones

University of Southampton

G.A.Jones@maths.soton.ac.uk

I will show that in various categories, including many consisting of maps or hypermaps, oriented or unoriented, of a given hyperbolic type, or of coverings of a suitable topological space, every countable group A is isomorphic to the automorphism group of uncountably many non-isomorphic objects, infinitely many of which are finite if A is finite. In particular, the latter applies to dessins d'enfants, regarded as finite oriented hypermaps. The objects realising A are obtained as regular coverings by A of certain basic objects with primitive monodromy groups, corresponding to maximal subgroups of triangle groups. The constructions of these generalise results of Bernhard Neumann on maximal subgroups of infinite index in the modular group, and of Marston Conder on maximal subgroups of finite index in various cocompact triangle groups.