ANDREA BURGESS, University of New Brunswick

On the Oberwolfach Problem for single-flip 2-factors via graceful labellings

The *Oberwolfach problem*, OP(F), first posed by Ringel in 1967, asks for a decomposition of the complete graph K_v into copies of a given 2-factor F of order v. We give a solution whenever F has a sufficiently large odd cycle meeting a specified lower bound and, in addition, F has a *single-flip* automorphism (i.e. an involutory automorphism which acts as a reflection on exactly one cycle of F). For even orders v, we give analogous results for the maximum packing and minimum covering variants of the problem for single-flip 2-factors with a sufficiently large even cycle. Our methods involve applying a doubling construction to graceful labellings of 2-regular graphs with a vertex removed, and allow us to explicitly construct solutions to the Oberwolfach Problem with well-behaved automorphisms.

This is joint work with Peter Danziger and Tommaso Traetta.