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On the Oberwolfach and Hamilton-Waterloo Problem for Bipartite 2-factors

The Oberwolfach problem was first introduced by Ringel in the 1960's, the problem requires one to find a factorization of K_n (K_n minus a 1-factor if n is even) into a specified 2-factor F . An obvious generalization requires the factorization into t specified 2-factors F_1, \dots, F_t . When $t = 2$, this is known as the Hamilton-Waterloo problem. Both of these problems have received some attention of late.

I will present a Theorem that solves a large number of cases when n is even and the 2-factors F_i are bipartite. This result completes the solution of the Oberwolfach problem for any collection of even sized cycles and in addition it settles the Hamilton-Waterloo problem for bipartite 2-factors. This is joint work with Darryn Bryant.