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Honeymoon Oberwolfach Problem: Small Cases

You are attending a conference where attendees consist of n couples. Couples must be seated next to each other every day of the conference, but next to every other person exactly once. At our disposal, we have t round tables that accommodate m_1, m_2, \dots, m_t attendees, respectively, such that $m_1 + m_2 + \dots + m_t = 2n$ and each $m_i > 2$. This problem, nicknamed the Honeymoon Oberwolfach Problem, was introduced in [D. Lepine, M. Šajna, On the Honeymoon Oberwolfach Problem, *J. of Combin. Des.* **27** (2019), 420—447]. The authors showed that the problem has a solution for many general cases. Most important are the instances when all table sizes are the same, as well as for all $n \leq 9$.

In this talk, we present our computer-aided techniques based on the above-mentioned paper that allowed us to extend the latter result to all $n \leq 20$.

This is joint work with my research supervisor, Mateja Šajna.