An explicit lower bound on the largest cycle for the solvability of the Oberwolfach problem

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The Oberwolfach problem OP(F), posed by Ringel in 1967, asks for a decomposition of the complete graph K_v into copies of a given 2-regular graph F of odd order v. Some recent non-constructive results [2, 4] provide an asymptotic proof of the solvability of OP(F) for sufficiently large orders, but leave the specific lower bound for v unquantified.

In this talk, we present a method to build solutions to OP(F) whenever F has a cycle of length greater than an explicit lower bound [5], thereby partially filling this gap. Our constructions combine the amalgamation-detachment technique [3] with methods for building suitable decompositions of K_v having an automorphism group with a nearly-regular action on the vertices [1].

References

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