

Decomposing complete multigraphs into stars of varying sizes

In 1979 Tarsi showed that an edge decomposition of a complete multigraph into stars of size k exists whenever the obvious necessary conditions hold. In 1996 Lin and Shyu gave necessary and sufficient conditions for the existence of an edge decomposition of a (simple) complete graph into stars of sizes m_1, \dots, m_t .

I will discuss the common generalisation of these problems: when does a complete multigraph admit an edge decomposition into stars of sizes m_1, \dots, m_t ? This problem exhibits more complicated and interesting behaviour than either of its specialisations.

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