On the spectrum problem for the 3-uniform tri-star with 4 edges

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Let $K_n^{(3)}$ denote the complete 3-uniform hypergraph of order n and let H denote the 3-uniform hypergraph with vertex set $\{a, b, c, d, e, f, g, h, i\}$ and edge set $\{\{a, b, c\}, \{a, d, e\}, \{b, f, g\}, \{c, h, i\}\}$. We find necessary and sufficient conditions for the existence of an H-decomposition of $K_n^{(3)}$.

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