On (C_4, E_2)-decompositions of the complete 3-uniform hypergraph $K_n^{(3)}$

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The graph decomposition problem involves a partition of the edges of a large graph into edge-disjoint copies of one or more small graphs. For most of the work on this problem, the larger graph is a complete graph, complete bipartite graph, or complete multipartite graph. There has been less work on decompositions of the hypergraphs. In this paper we find conditions for the decompositions of the complete 3-uniform hypergraph $K_n^{(3)}$ into edge-disjoint copies of the 4-cycle C_4 and the graph E_2 consisting of two disjoint edges.