Primitive Cycle Decompositions

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Let G be a graph with a decomposition $\mathcal{G}$. Then $\mathcal{H}$ is a *subdecomposition* of $\mathcal{G}$ if $\mathcal{H}$ is a nonempty subset of $\mathcal{G}$ and $\mathcal{H}$ is a decomposition of an induced subgraph of G. Furthermore, we say $\mathcal{G}$ is a *primitive decomposition* of G if the only subdecomposition of $\mathcal{G}$ is $\mathcal{G}$ itself. This is a generalization of systems with no subsystems. In this talk, we discuss the history of this question, as well as highlight some recent work on finding primitive cycle decompositions.

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