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Systems of Dyson-Schwinger equations

In QFT, the propagators satisfy a Dyson-Schwinger system in a Hopf algebra of Feynman graphs. These systems can be lifted to the Hopf algebra of decorated rooted trees with the help of grafting operators. It turns out that in physical cases, the subalgebra generated by the solution of this system is Hopf, a result false in general. We shall give a complete description of Dyson-Schwinger systems with these properties, as well as the associated Lie algebras.