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Hopf-Frobenius Gauge Theories

Hopf algebras and Frobenius algebras are two structures that have found important roles in formulating quantum field theory: Hopf algebras in the guise of quantum groups, and Frobenius algebras in the realm of topological quantum field theories. In this talk, we present a compatibility structure between these two algebras, which we call *Hopf-Frobenius modules*, and show how these modules generalize the geometric, analytic, and algebraic structures that appear in field theory, allowing us to formulate a notion of gauge theory in this setting.