Wightman Axioms for Hopf-Frobenius Modules

Friday 6 June 2025 09:15 (15 minutes)

Frobenius algebras and Hopf algebras generalize algebras of functions and Lie groups/Lie algebras, respectively. Appropriate constructions involving these two types of algebras link together concepts from functional analysis with those from Lie theory. As quantum field theories often involve a mixture of analytic and algebraic structures (for instance, performing analysis on operator-valued distributions), Hopf-Frobenius constructions may play an important role in understanding the underlying structure of these theories.

In this talk we will introduce the notion of a Hopf-Frobenius module, and show how the Wightman axioms can be viewed as natural axioms on a collection of such modules.

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Session Classification: Mathematical Physics