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Title : "Are locality and renormalisation reconcilable?"

Abstract: According to the principle of locality in physics, events taking place at different locations should behave independently, a feature expected to be reflected in the measurements. The latter are confronted with theoretic predictions which use renormalisation techniques in order to deal with divergences from which one wants to derive finite quantities.

The purpose of this talk is to confront locality and renormalisation.

Sophisticated (co)algebraic methods developed by physicists enable to keep track of locality while renormalising. They mostly use a univariate regularisation scheme such as dimensional regularisation. We shall present an alternative multivariate approach to renormalisation which encodes locality as an underlying algebraic principle. We shall apply it to various situations involving renormalisation, such as divergent multizeta functions and their generalisations, namely discrete sums on cones and discrete sums associated with trees.

This is based on joint work with Pierre Clavier, Li Guo and Bin Zhang.