Meeting: 1001, Evanston, Illinois, SS 24A, Special Session on Hopf Algebras at the Crossroads of Algebra, Category Theory, and Topology

1001-81-102   **Dirk Kreimer*** (`kreimer@ihes.fr`), Math Dept, 111 Cummington St., Boston Univ., Boston, MA 02215. *Hopf algebras at the crossroads: mathematical structure in quantum fields.* Preliminary report.

We review recent developments which emphasize the role of Hopf algebra in renormalization and quantum field theory. Taking quantum electrodynamics as an example, we show how algebraic structures illuminate perturbative and non-perturbative aspects of quantum field theory. In particular, we focus on the unifying role of the Hochschild cohomology of the Hopf algebra of Feynman graphs. (Received August 17, 2004)