Abstract:

In this talk we explain the role of Iwasawa theory in the Bloch-Kato conjecture on special values of L-functions and some consequences.

Starting from the very elementary case of the Riemann zeta function we shall discuss classical results in (commutative) Iwasawa theory from the Bloch-Kato viewpoint. Avoiding technicalities as much as possible we then derive a formulation of the non-commutative Iwasawa Main Conjecture without p-adic L-functions.

In the more technical part of the lecture I will explain possible attemps to incorporate and define the non-commutative p-adic L-function and a strange consequence of the Main Conjecture, namely all elements in K-theory are twists of units of number fields. This can be proven in p-adic K-theory under some technical hypothesis.