

RECIPROCITY LAW AND CLASS FIELD THEORY

GABRIELE BOGO

UNIVERSITÀ DEGLI STUDI DI PADOVA

**Torre Archimede, room SRVII,
13.30 Monday, 17th November 2014**

ABSTRACT

This talk is an introduction to class field theory themes and methods. Starting from the basic facts, I will present some results in order to state and prove the reciprocity laws in both the local and global cases.

Let $L|K$ be a finite Galois extension, let $G(L|K) = G_K/G_L$ be its Galois group. I will construct an appropriate $G(L|K)$ -module A_L and, defining $A_K = A_L^{G(L|K)}$, an isomorphism $r_{L|K}: G(L|K) \rightarrow A_K/N_{L|K}A_L$, where $N_{L|K}$ is the norm map; this is the reciprocity map.

The talk begins with a pure group theoretic description of the general reciprocity law, then I will discuss the local and global settings, insisting on the different approaches: in particular, in the global case, I will introduce the adelic construction.

REFERENCES

- (1) Neukirch J. *Class Field Theory*, Springer, first edition, 1986.
- (2) Tate J. *Class Field Theory*, Ams, second revised edition, 2008.
- (3) Serre J.P. *Algebraic Groups and Class Fields*, Springer, second edition, 1997.