

UNIVERSITAT DE BARCELONA

FACULTAT DE MATEMÀTIQUES

PROGRAMA DE DOCTORAT de matemàtiques

*Curs 2004-2005*

El professor

Jannis. A. Antoniadis

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impartirà un curs de 8 hores de títol

## Class Field Towers

els dies 21 (dimarts), 23 (dijous), 28 (dimarts) i 29 (dimecres) de juny, de les 11:00 a les 13:00 hores, a les aules B3 (dies 21, 23 i 28) i B1 (dia 29) de la Facultat de Matemàtiques (planta baixa).

Curs obert a tothom que hi estigui interessat !

### ABSTRACT

*It is well known that the extensions of all (fractional) ideals of an algebraic number field  $K$  to its Hilbert class field  $H$  are principal ideals (The principal Ideal Theorem), although the field  $H$  itself has no, in general, class number one. So a very natural question arises that if one constructs a tower of fields where every one is the Hilbert class field of its previous then is it possible to stop, after finite steps, to a field of class number one or not?*

*The answer of this question is in general not (for fields with “enough” ramification) and it has been proven by Golod-Shafarevich as one important application of class field theory combined with results of group theory.*

*During the course we will prove the theorem following the article of Peter Roquette from the book “Algebraic Number Theory”, Academic Press, London 1967, and discuss some newer results of Schoof, Lemmermeyer and Thiebaud.*