

UNIVERSITAT DE BARCELONA

FACULTAT DE MATEMÀTIQUES

PROGRAMA DE DOCTORAT DE MATEMÀTIQUES

Curs 2004-2005

El professor

Razvan Dinu Litcanu

(University Al. I. Cuza, Iasi, Romania)

impartirà un curs de 4 hores de títol

**Grothendieck theory of dessins d'enfants.
Applications in arithmetic geometry**

els dies **28** (dimarts) i **29** (dimecres) de juny, de les **15:00 a les 17:00 hores**, a les aules **B3** (dia **28**) i **B1** (dia **29**) de la Facultat de Matemàtiques (planta baixa).

Curs obert a tothom que hi estigui interessat !

ABSTRACT

Belyi's Theorem (Belyi, 1979) is one of the most celebrated results concerning the arithmetic of algebraic curves. It characterizes the compact Riemann surfaces that can be defined by a polynomial equation having the coefficients in a finite extension of \mathbb{Q} , by the existence of a cover of the projective line with at most three branching points (the Belyi covers).

Grothendieck noticed the relation between the Belyi covers and some graphs on topological surfaces - the "dessins d'enfants" - and emphasized possible applications in: the Inverse Galois Problem, the study of anabelian varieties etc. I shall explain how they can be used in defining arithmetical invariants or in studying differential operators on algebraic curves.

PLAN OF THE COURSE

- 1. Belyi's Theorem - main ideas of the proof.*
- 2. Grothendieck correspondence with dessins d'enfants.*
- 3. (Possible) applications in arithmetic problems: the Inverse Galois Problem, the definition of height functions, the classification of differential operators with finite monodromy.*