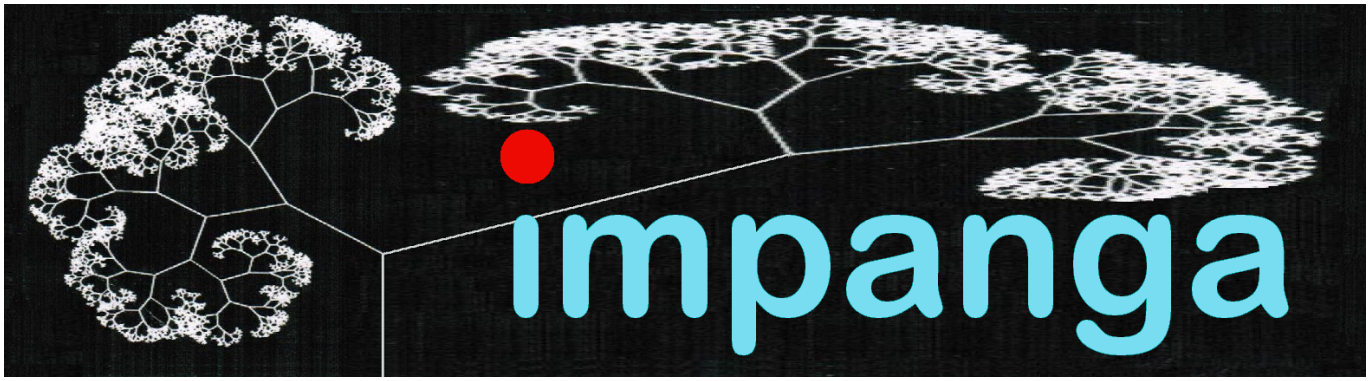

MODULAR CURVES

IM PAN, Śniadeckich 8, Room 403

Organizers: Przemysław Chojecki and Adrian Langer

The goal of the workshop is to review basic geometric and representation-theoretic properties of modular curves which are fundamental to modern algebraic geometry and number theory.

17th December 2012:

10.30 - 11.45 Maciej Ulas: General definition of elliptic curves and basic facts about them. Reminder on algebraic number theory. Supersingular and ordinary elliptic curves. Hasse invariant. Definition of modular curves.

13.00 - 14.15 Joachim Jelisiejew: Formal groups as a local analogue of elliptic curves. Formal groups associated to elliptic curves. Examples with Lubin-Tate extensions. Lubin-Tate spaces.

14.35 - 15.50 Krzysztof Górnisiewicz: Modular curves as a moduli problem. Vector bundles on modular curves and their sections - automorphic forms. Basic facts about the geometry of modular curves. Connections between Lubin-Tate spaces and modular curves.

18th December 2012:

10.30 - 11.45 Adrian Langer: Complex and p-adic uniformisation of elliptic curves. Tate curve. Introduction to rigid analytic geometry of Tate.

13.00 - 14.15 Michał Zydor: Why automorphic forms appear naturally in the context of Betti cohomology of modular curves. About Matsushima formula.

14.35 - 15.50 Przemysław Chojecki: Reminder on étale cohomology in the context of elliptic and modular curves. Applications of l-adic cohomology in Matsushima formula.

19th December 2012:

10.30 - 11.45 Grzegorz Banaszak: Why do we want to construct Galois representations? Applications.

13.00 - 14.15 Bartosz Naskręcki: Construction of Galois representations associated to modular forms of weight 2.

14.35 - 15.50 Przemysław Chojecki: Cohomology of modular curves in the context of Langlands program.

http://www.math.jussieu.fr/∼chojecki/modcurves.html