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Title: A brief introduction to Modular Towers

Abstract. Modular towers have been introduced by M. Fried. They are towers of Hurwitz spaces, with levels corresponding to some characteristic quotients of the p-universal Frattini cover of a fixed finite group G (with p a prime divisor of $|G|$). The tower of modular curves $X^1(p^n)$ $(n > 0)$ is the original example: the group G is then the dihedral group D_p. A central conjecture is that over a number field, rational points should not exist beyond a certain level of a modular tower. This conjecture, which generalizes a classical result on modular curves, or in other words, on torsion of elliptic curves, has significant implications for the Regular Inverse Galois Problem. There are evidences for the conjecture, there are partial results, and there is hope to understand the obstructions it reveals: a bridge has been established between the non abelian Galois world of Modular Towers and the arithmetic of Abelian Varieties. We will offer a brief introduction to the Modular Tower program, which will be a main theme of the conference.

References:

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