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Title: Towers of Harbater-Mumford components

In a joint work with P.Dèbes [1], we construct, for every projective system (G_n), $(n \geq 0)$ of finite groups, a tower of components H_n of the corresponding Hurwitz spaces, geometrically irreducible and defined over some cyclotomic extension of Q, which admits projective systems of Q_p^{ur}-rational points for all primes p not dividing the orders $|Gn|$ $(n \geq 0)$.

These components H_n are the so called "Harbater-Mumford-components" of the Hurwitz spaces introduced by M.Fried. Their definition is of topological nature. A main idea, already present in [3], is that HM-components can be characterized by their trace on the border of the compactified Hurwitz space. This allows us to pass from p-adic to complex objects.

A main tool to prove this characterization of HM-components is a comparison theorem for a relative stable marked curve between fundamental groups of the irreducible components of the special fiber and the foundamental group of the generic fiber [2]. We shall explain how this general theorem applies here.

References:

[1] P. Dèbes and M. Emsalem, "Harbater-Mumford Components and Towers of Moduli Spaces", *J. Math. Inst. Jussieu*, (to appear).

[2] M. Emsalem, "Groupoïde fondamental de courbes stables (preprint)

[3] M. Fried, *Introduction to modular towers*, in *Recent Developments in the Inverse Galois Problem*, Contemporary Math., **186**, (1995), 111–171.