The University of Chicago
ALGEBRAIC GEOMETRY SEMINAR

Tuesday, December 6th, 2016
4:30 – 6:00 pm, Eckhart 312

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The rationality problem for forms of moduli spaces of stable marked curves.

Let $M_{g,n}$ be the moduli space of stable curves of genus g with n marked points. It is a classical problem in algebraic geometry to determine which of these spaces are rational over the field of complex numbers. In this talk, based on joint work with Matthieu Florence, I will discuss the rationality problem for twisted forms of $M_{g,n}$. Twisted forms of $M_{g,n}$ are of interest because they shed light on the arithmetic geometry of $M_{g,n}$, and because they are coarse moduli spaces for natural moduli problems in their own right. A classical result of Enriques, Manin, and Swinnerton-Dyer asserts that every form of $M_{0,5}$ is rational. (The F-forms $M_{0,5}$ are precisely the del Pezzo surfaces of degree 5 over F.) Matthieu and I have generalized this result to $M_{0,n}$ for $n \geq 5$. We also have some positive results for forms of $M_{g,n}$, where $g \leq 5$ (for small n).