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Rational Fibrations of $\overline{M_{g,1}}$.

The moduli spaces of curves have proven themselves to be important objects of study in algebraic geometry. Unfortunately, these spaces are notoriously difficult to describe. One approach to studying them might be to construct maps from the moduli space to other objects that we could perhaps describe explicitly. It is known, however, that the moduli space $\overline{M_{g,n}}$ admits no non-trivial fibrations that are everywhere defined. In this talk, we describe naturally occurring rational fibrations of $\overline{M_{5,1}}$ and $\overline{M_{6,1}}$, and examine some consequences for the birational geometry of these spaces. (Received September 08, 2009)