Joel Bellaiche* (jbellaic@brandeis.edu). The eigencurve at classical points of weight 1.

This is a joint work with Mladen Dimitrov. We determine the geometry of the eigencurve at points corresponding to classical modular forms of weight one. At such a point (under a mild assumption of regularity at $p$) we prove that the eigencurve is always smooth, and that it is furthermore étale over the weight space if and only if the form has real multiplication by a quadratic real field in which $p$ splits. As a consequence of this result, we can construct $p$-adic $L$-function for forms of weight one which fit in a two-variable family over the eigencurve. (Received August 18, 2014)