

BOSTON UNIVERSITY NUMBER THEORY SEMINAR

# An arithmetic theory for certain Teichmuller curves

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Monday, April 23 at 4:15 pm  
111 Cummington Mall, MCS B21  
Tea and cookies in MCS 144 at 4:00 pm

**Abstract:** This talk will concern certain curves in the moduli of genus 2 curves whose Jacobians admit multiplication by a real quadratic order (in other words, in a Hilbert modular surface). These were originally discovered by C. McMullen as totally geodesic subspaces with respect to the Teichmuller metric. It turns out, however, that these curves admit natural algebraic models over  $\mathbb{Q}$ , and even over the integers. Moreover, they are essentially transversal to the modular curves in the generic fiber, but, interestingly, certain components of their special fibers turn out to be modular. This translates into congruences between the defining equations for the Teichmuller curve and some modular polynomials. I will explain why this is so. This is joint work with R. Mukamel.