Pairs of real normalized differentials, cohomology of $\mathcal{M}_g$, and cusps of plane curves

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We use a pair of meromorphic differentials on a Riemann surface with all periods real to construct real foliations of $\mathcal{M}_g$ with complex leaves. This structure allows us to bound the possible number of common zeroes of these two differentials. One application of this is a new proof of vanishing of some tautological classes in cohomology. Another application is a new bound for the maximal number of cusps of plane curves. Joint work in progress with Igor Krichever.

Tuesday, February 21
3:00 – 4:00 p.m.
Harvard (SC 507)