1088-35-106 **Jesse David Gell-Redman*** (jgell@math.toronto.edu), Room 6290, 40 St. George Street, Toronto, ON M5S 2E4, Canada. *The heat kernel of the Weil-Petersson Laplacian on Riemann moduli space.*

Inspired by recent work of Ji, Mazzeo, Müller, and Vasy on the Laplacian of the Weil-Petersson metric on the Riemann moduli space, we construct the integral kernel of the fundamental solution to the heat equation for the same metric. The Weil-Petersson metric is an incomplete metric on a smooth manifold, singular on a finite family of immersed divisors which cross normally. Following work of Melrose and many others, the behavior of the heat kernel is described by its asymptotic behavior in various regimes, i.e. as the time t goes to zero and the ratios of t and certain powers the distance functions from the divisors stay bounded. The most useful way of approaching the latter process is to construct a space via radial blowup on which the heat kernel pulls back to have asymptotic expansions at the boundary faces; in particular from this we can deduce the asymptotics of the trace of the heat kernel directly using more work of Melrose. (Received February 05, 2013)