

BROWNIAN MEASURES ON JORDAN CURVES

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ABSTRACT. We describe a construction of the Brownian measure on Jordan curves with respect to the Weil-Petersson metric. The step from Brownian motion on the diffeomorphism group of the circle to Brownian motion on Jordan curves in the complex plane requires probabilistic arguments well beyond the classical theory of conformal welding, due to the lacking quasi-symmetry of canonical Brownian motion on $\text{Diff}(S^1)$. The key step in our construction is the systematic use of a Kählerian diffusion on the space of Jordan curves for which the welding functional gives rise to conformal martingales.