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Tarik Aougab* (tarik.aougab@yale.edu), Yale University Mathematics Department, 10 Hillhouse Avenue, New Haven, CT 06511. *Minimal length, minimally intersecting filling pairs over Moduli space.*

(Topological) Morse functions defined over the moduli space of Riemann surfaces have been extensively studied; understanding the structure of the critical points of such a function can give rise to naturally occurring cellular decompositions of moduli space. One such function is the systole function, which, given a hyperbolic surface, outputs the length of the shortest closed geodesic. We propose and analyze a different sort of systole function: one which outputs the length of the shortest pair of simple closed curves which fill the surface, and which intersect minimally amongst all filling pairs. We completely characterize the minima of this function, and we compute lower and upper bounds for the number of global minima; in particular, there are at least exponentially many as a function of genus. Furthermore, there exists some uniform constant K such that all minima are in the K -thick part, independent of genus. This is joint work with S. Huang. (Received September 07, 2013)