

Long-time convergence of harmonic map heat flows for Riemannian surfaces

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ABSTRACT

We discuss long-time convergence of the heat flow for harmonic maps of a Riemannian surface. In general it is possible that the flow has accumulation points at which the Hessian of the energy function is degenerate. Under the assumption that the Hessian of the energy at a weak limit is positive definite, we show that it converges in $W^{2,2}$ -topology as long as no bubbling occurs at infinity time.