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Changyou Wang* (cywang@ms.uky.edu), Department of Mathematics, University of Kentucky, Lexington, KY 40506. *Heat flow of biharmonic maps in dimension four and its application.* Preliminary report.

In this talk, we consider the heat flow of extrinsic biharmonic maps from a 4-dimensional manifold to another manifold, and establish the existence of a global weak solution that is smooth away from finite many singular times. As an application, we show that if the target manifold has its fourth homotopy group trivial, then any free homotopy class has an extrinsic biharmonic map that minimizes the Hessian energy. (Received February 10, 2006)