Global existence and finite time blow-up for the heat flow of H-system with constant mean curvature

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Abstract

In this paper, we use the modified potential well method to study the long time behaviors of solutions to the heat flow of H-system in a bounded smooth domain of R^2. Global existence and finite time blowup of solutions are proved when the initial energy is in three cases. When the initial energy is low or critical, we not only give a threshold result for the global existence and blowup of solutions, but also obtain the decay rate of the L^2 norm for global solutions. When the initial energy is high, sufficient conditions for the global existence and blowup of solutions are also provided. We extend the recent results which were obtained in (missing citation).

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References