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Remarks on the heat flow of harmonic maps: uniqueness and weak-strong theory

There are essentially two research lines pertaining to the harmonic maps problem: the first is related to the theory of weak solutions whose global existence is proved for initial data in $W^{1,2}$ and the second to the theory of strong (mild) solutions which are constructed in scaling invariant spaces. The uniqueness question for both notion of solutions is largely open. In this talk, I will discuss a new uniqueness result and its consequence in bridging the gap between finite energy weak solutions and mild solutions.