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5.2 Existence of short time smooth solutions5.3 Existence of global smooth solutions under RN < 0; 5.4 An extension of Eells-Sampson's theorem; 6 Bubbling analysis in dimension two; 6.1 Minimal immersion of spheres; 6.2 Almost smooth heat ows in dimension two; 6.3 Finite time singularity in dimension two; 6.4 Bubbling phenomena for 2-D heat ows; 6.5 Approximate harmonic maps in dimension two; 7 Partially smooth heat ows; 7.1 Monotonicity formula and a priori estimates; 7.2 Global smooth solutions and weak compactness; 7.3 Finite time singularity in dimensions at least three
7.4 Nonuniqueness of heat flow of harmonic maps7.5 Global weak heat flows into spheres; 7.6 Global weak heat flows into general manifolds; 8 Blow up analysis on heat ows; 8.1 Obstruction to strong convergence; 8.2 Basic estimates; 8.3 Stratification of the concentration set; 8.4 Blow up analysis in dimension two; 8.5 Blow up analysis in dimensions n > 3; 9 Dynamics of defect measures in heat flows; 9.1 Generalized varifolds and rectifiability; 9.2 Generalized varifold flows and Brakke's motion; 9.3 Energy quantization of the defect measure; 9.4 Further remarks; Bibliography; Index

Sommario/riassunto

This book provides a broad yet comprehensive introduction to the analysis of harmonic maps and their heat flows. The first part of the book contains many important theorems on the regularity of minimizing harmonic maps by Schoen-Uhlenbeck, stationary harmonic maps between Riemannian manifolds in higher dimensions by Evans and Bethuel, and weakly harmonic maps from Riemannian surfaces by Helein, as well as on the structure of a singular set of minimizing harmonic maps and stationary harmonic maps by Simon and Lin. The second part of the book contains a systematic coverage of heat flow of harmon