1. Record Nr. UNINA9910778097803321

Autore	Druet Olivier <1976->
Titolo	Blow-up theory for elliptic PDEs in Riemannian geometry [[electronic resource] /] / Olivier Druet, Emmanuel Hebey, Frederic Robert
Pubbl/distr/stampa	Princeton, N.J., : Princeton University Press, c2004
ISBN	1-282-08723-1 1-282-93537-2 9786612935374 9786612087233 1-4008-2616-0
Edizione	[Course Book]
Descrizione fisica	1 online resource (227 p.)
Collana	Mathematical Notes ; ; 45
Classificazione	31.45
Altri autori (Persone)	HebeyEmmanuel <1964-> RobertFrederic <1974->
Disciplina	515/.353
Soggetti	Calculus of variations Differential equations, Nonlinear Geometry, Riemannian
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Note generali	Description based upon print version of record.
Nota di bibliografia	Includes bibliographical references (p. [213]-218).
Nota di contenuto	Front matter -- Contents -- Preface -- Chapter 1. Background Material -- Chapter 2. The Model Equations -- Chapter 3. Blow-up Theory in Sobolev Spaces -- Chapter 4. Exhaustion and Weak Pointwise Estimates -- Chapter 5. Asymptotics When the Energy Is of Minimal Type -- Chapter 6. Asymptotics When the Energy Is Arbitrary -- Appendix A. The Green's Function on Compact Manifolds -- Appendix B. Coercivity Is a Necessary Condition -- Bibliography
Sommario/riassunto	Elliptic equations of critical Sobolev growth have been the target of investigation for decades because they have proved to be of great importance in analysis, geometry, and physics. The equations studied here are of the well-known Yamabe type. They involve Schrödinger operators on the left hand side and a critical nonlinearity on the right hand side. A significant development in the study of such equations occurred in the 1980's. It was discovered that the sequence splits into a solution of the limit equation--a finite sum of bubbles--and a rest that converges strongly to zero in the Sobolev space consisting of square

integrable functions whose gradient is also square integrable. This splitting is known as the integral theory for blow-up. In this book, the authors develop the pointwise theory for blow-up. They introduce new ideas and methods that lead to sharp pointwise estimates. These estimates have important applications when dealing with sharp constant problems (a case where the energy is minimal) and compactness results (a case where the energy is arbitrarily large). The authors carefully and thoroughly describe pointwise behavior when the energy is arbitrary. Intended to be as self-contained as possible, this accessible book will interest graduate students and researchers in a range of mathematical fields.