1. Record Nr. UNINA9910483651503321 Autore Bianchini Bruno <1958-> Titolo Geometric Analysis of Quasilinear Inequalities on Complete Manifolds: Maximum and Compact Support Principles and Detours on Manifolds / / by Bruno Bianchini, Luciano Mari, Patrizia Pucci, Marco Rigoli Cham:,: Springer International Publishing:,: Imprint: Birkhäuser,, Pubbl/distr/stampa 2021 3-030-62704-7 ISBN Edizione [1st ed. 2021.] Descrizione fisica 1 online resource (X, 286 p. 1 illus.) Collana Frontiers in Mathematics, , 1660-8054 Disciplina 516.373 Soggetti Global analysis (Mathematics) Manifolds (Mathematics) Global Analysis and Analysis on Manifolds Lingua di pubblicazione Inglese **Formato** Materiale a stampa Livello bibliografico Monografia Nota di bibliografia Includes bibliographical references and index. Sommario/riassunto This book demonstrates the influence of geometry on the qualitative behaviour of solutions of quasilinear PDEs on Riemannian manifolds. Motivated by examples arising, among others, from the theory of submanifolds, the authors study classes of coercive elliptic differential inequalities on domains of a manifold M with very general nonlinearities depending on the variable x, on the solution u and on its gradient. The book highlights the mean curvature operator and its variants, and investigates the validity of strong maximum principles, compact support principles and Liouville type theorems. In particular, it identifies sharp thresholds involving curvatures or volume growth of geodesic balls in M to guarantee the above properties under appropriate Keller-Osserman type conditions, which are investigated in detail throughout the book, and discusses the geometric reasons behind the existence of such thresholds. Further, the book also provides a unified review of recent results in the literature, and creates a bridge with geometry by studying the validity of weak and strong

maximum principles at infinity, in the spirit of Omori-Yau's Hessian

and Laplacian principles and subsequent improvements.