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Nota di contenuto	Introduction -- Geometric preliminaries -- Ricci ow background -- Ricci ow conjugation of initial data sets -- Concluding remarks.
Sommario/riassunto	This book contains a self-consistent treatment of a geometric averaging technique, induced by the Ricci flow, that allows comparing a given (generalized) Einstein initial data set with another distinct Einstein initial data set, both supported on a given closed n-dimensional manifold. This is a case study where two vibrant areas of research in geometric analysis, Ricci flow and Einstein constraints theory, interact in a quite remarkable way. The interaction is of great relevance for applications in relativistic cosmology, allowing a mathematically rigorous approach to the initial data set averaging problem, at least when data sets are given on a closed space-like hypersurface. The book does not assume an a priori knowledge of Ricci flow theory, and considerable space is left for introducing the necessary techniques. These introductory parts gently evolve to a detailed discussion of the more advanced results concerning a Fourier-mode expansion and a sophisticated heat kernel representation of the Ricci flow, both of which are of independent interest in Ricci flow theory. This work is intended for advanced students in mathematical physics and researchers alike. .