



BOOK REVIEW

Total Mean Curvature and Submanifolds of Finite Type, by Bang-Yen Chen, World Scientific, Singapore 2015, xviii + 467 pp., ISBN: 978-981-4616-68-3 (hardcover), ISBN: 978-981-4616-69-0 (softcover).

The book *Total Mean Curvature and Submanifolds of Finite Type* is the new edition of the book published under the same title in 1984 by one of the leading experts on the geometry of submanifolds. The book presents the most important topics in the theory of submanifolds. The readers will find this new edition both a good introduction to the area of total mean curvature and finite type theory, and a very useful reference to recent results on both subjects, which have great value both within mathematics as well as in other natural sciences. Reading this book the readers will deepen their understanding and improve their appreciation of the concepts and theories under discussion.

The study of submanifolds of finite type has been a very active research subject in the recent years. In particular, biharmonic submanifolds have been receiving a growing attention and have become a popular subject of research with many important progresses. The first edition of the book collected the major results, up to the early 1980s, on total mean curvature and submanifolds of finite type. In the second edition the author presents a great number of important new results on both subjects, including recent developments and results on biharmonic submanifolds and biharmonic conjectures obtained after the publishing of the first edition.

The book consists of ten chapters. Chapters 1, 2, 3, and 4 on *Differentiable Manifolds, Riemannian and Pseudo-Riemannian Manifolds, Hodge Theory and Spectral Geometry*, and *Submanifolds* of the new edition are reworked versions of the first four chapters of the first edition. Chapters 5 and 6 on *Total Mean Curvature* and on *Submanifolds of Finite Type* of the first edition are modified and expanded and new extra chapters 7, 8, 9 and 10 on *Biharmonic Submanifolds and Biharmonic Conjectures*, λ -*biharmonic and Null 2-Type Submanifolds*, *Applications of Finite Type Theory*, and *Additional Topics in Finite Type Theory* are added in the new edition. In all chapters the author has included many historical notes and observations on the presented material for a better and comprehensive readability.