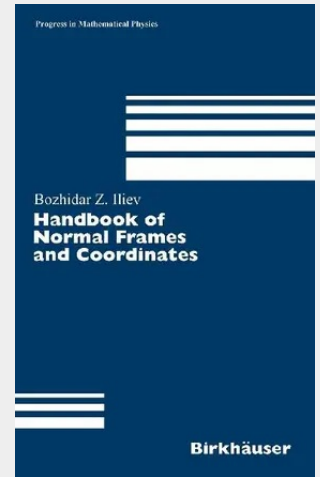


Handbook of Normal Frames and Coordinates

The main subject of this book is an up-to-date and in-depth survey of the theory of normal frames and coordinates in differential geometry. The existing results, as well as new ones obtained lately by the author, on the theme are presented. The text is so organized that it can serve equally well as a reference manual, introduction to and review of the current research on the topic. Correspondingly, the possible audience ranges from graduate and post-graduate students to scientists working in differential geometry and theoretical/mathematical physics. This is reflected in the bibliography which consists mainly of standard (text)books and journal articles. The present monograph is the first attempt for collecting the known facts concerning normal frames and coordinates into a single publication. For that reason, the considerations and most of the proofs are given in details. Conventionally local coordinates or frames, which can be holonomic or not, are called normal if in them the coefficients of a linear connection vanish on some subset, usually a submanifold, of a differentiable manifold. Until recently the existence of normal frames was known (proved) only for symmetric linear connections on submanifolds of a manifold. Now the problems concerning normal frames for derivations of the tensor algebra over a differentiable manifold are well investigated; in particular they completely cover the exploration of normal frames for arbitrary linear connections on a manifold. These rigorous results are important in connection with some physical applications.

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