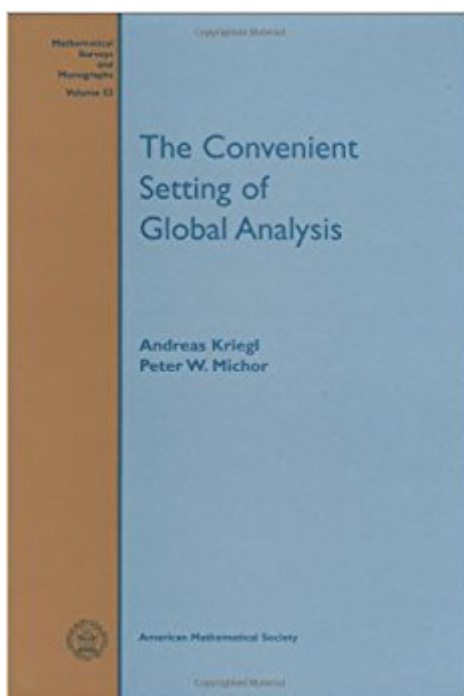## The book was found

The Convenient Setting Of Global Analysis (Mathematical Surveys And Monographs)

Synopsis

This book lays the foundations of differential calculus in infinite dimensions and discusses those applications in infinite dimensional differential geometry and global analysis not involving Sobolev completions and fixed point theory. The approach is simple: a mapping is called smooth if it maps smooth curves to smooth curves. Up to Frechet spaces, this notion of smoothness coincides with all known reasonable concepts. In the same spirit, calculus of holomorphic mappings (including Hartogs' theorem and holomorphic uniform boundedness theorems) and calculus of real analytic mappings are developed. Existence of smooth partitions of unity, the foundations of manifold theory in infinite dimensions, the relation between tangent vectors and derivations, and differential forms are discussed thoroughly. Special emphasis is given to the notion of regular infinite dimensional Lie groups. Many applications of this theory are included: manifolds of smooth mappings, groups of diffeomorphisms, geodesics on spaces of Riemannian metrics, direct limit manifolds, perturbation theory of operators, and differentiability questions of infinite dimensional representations.

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