Preface

We invoke (descriptive) topology recently applied to (functional) analysis of infinite-dimensional topological vector spaces, including Fréchet spaces, \((LF)\)-spaces and their duals, Banach spaces \(C(X)\) over compact spaces \(X\), and spaces \(C_p(X), C_c(X)\) of continuous real-valued functions on a completely regular Hausdorff space \(X\) endowed with pointwise and compact–open topologies, respectively. The \((LF)\)-spaces and duals particularly appear in many fields of functional analysis and its applications: distribution theory, differential equations and complex analysis, to name a few.

Our material, much of it in book form for the first time, carries forward the rich legacy of Köthe’s *Topologische lineare Räume* (1960), Jarchow’s *Locally Convex Spaces* (1981), Valdivia’s *Topics in Locally Convex Spaces* (1982), and Pérez Carreras and Bonet’s *Barrelled Locally Convex Spaces* (1987). We assume their (standard English) terminology. A topological vector space (tvs) must be Hausdorff and have a real or complex scalar field. A *locally convex space* (lcs) is a tvs that is locally convex. Engelking’s *General Topology* (1989) serves as a default reference for general topology.

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