

Complex Analytic Mappings between LB-Spaces with Applications in Lie Theory

An infinite dimensional analytic Lie group is a group which is at the same time an analytic manifold modelled on some locally convex topological vector space such that the group operations are analytic. In order to construct new classes of analytic Lie groups it is useful to have tools at hand ensuring analyticity of nonlinear mappings between locally convex spaces. This talk provides a sufficient criterion for complex analyticity in the case where the modelling space is an LB-space, i.e. a locally convex direct limit of an ascending sequence of Banach spaces. An interesting example of such a Lie group is the group of germs of diffeomorphisms around a compactum in a Banach space. Other examples can be constructed by taking countable unions of Banach Lie groups.