hilbert spaces of entire function

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It is known that the famous functional Hilbert space LiR).1t”(R) (Sobolev space) contain elements that are not entire (even notsmooth in the space L2(R)). The aim of the present thesis is tointroduce and study some Hilbert spaces consisting of entirefunctions. The second aim of the thesis is to study the Fouriertransformation as an operator by which it is possible to define entirejUnctions. For satisfying these aims it was necessary to present someelementary ideas and concepts on analytic jUnctions of a complexvariable. generalized function and some jUndamental theorems fromthe theory of real analysis.The thesis consists of five sections.The first section. Smooth and Analytic Functions of a complexor Real Variable. deals with analytic jUnctions of a complex variable.analytic jUnctions of a real variable. and the test space and testjUnctions in one dimension.The second section. Generalized Functions. deals with: Thespace of generalized functions in one dimension. and derivatives ofgeneralized function.The third section. Hilbert Spaces and Fourier Transformations.deals with : Abstract Hilbert spaces. Sobolev spaces. and the Fouriertransformation in LiR).Introductio« anti SUrtllllJtttjThe jourth section. Hilbert Spaces oj Entire Functions. dealswith: Some theorems oj Paley and Wiener, Paley-Wiener spaces. amod(fied Paley-Wiener theorem, and mod(fied Paley-Wiener spaces.The fifth section. Characterization oj Fowter Transjormations.deals with : A characterization oj Fourier transjormation in LiRJ. anda characterization oj Fourier transjormation in LiRnJ.