Weighted Fourier algebras and Complexification

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Abstract

Fourier algebra $A(G)$ of a locally compact group G, introduced by Eymard, is one of the favourite objects in abstract harmonic analysis. It has an advantage to be commutative that allows one to examine its Gelfand spectrum, which is known to be topologically isomorphic to G; the fact makes a non-trivial connection between Banach algebras and groups. We will discuss a weighted variant of Fourier algebra and show its connection with complexification of the underlying group. For compact groups this was done thanks to abstract complexification due to McKennon [Crelle, 79'] and Cartwright/McMullen [Crelle, 82']. We extended this theory to general locally compact groups and use the model to describe the Gelfand spectrum of weighted Fourier algebras, showing that the latter is a part of the complexification for a wide class of locally compact groups and weights. I shall also present different examples of weights and determine the spectrum of the corresponding algebras.

This talk is based on joint work with Olof Giselsson, Mahya Ghandehari, Hun Hee Lee, Jean Ludwig and Nico Spronk.