1056-43-1059 **Hans G. Feichtinger*** (hans.feichtinger@univie.ac.at), Fac. of Math., Univ. Austria, NuHAG, Alserbachstr. 23, Vienna, Austria. *Group theoretical aspects of Gabor Analysis.* Preliminary report.

Gabor Analysis is a particular branch of time-frequency analysis, and as such a flourishing part of mathematical analysis, but also highly relevant for signal processing applications. As opposed to the reconstruction of a function or distribution from its continuous short-time Fourier transform, or alternatively the representation of functions as a continuous superposition of coherent states, Gabor analysis makes use of discrete lattices in phase space.

There is a lot of analyis going on in Gabor analysis (Weyl-Heisenberg frames are used for signal expansions, Weyl-Heisenberg Riesz basis are used for communication, corresponding matrix representations of slowly varying channels are helpful in the design of better decoders), but some of the key results in Gabor analysis (such as the existence of dual windows, generating the dual frame, etc.) can be described at a purely algebraic level, making use of intertwining properties, commutation relations, covariance properties, and so on, which can be formulated in the setting of finite Abelian groups.

We will give a summary of such properties, emphasizing the algebraic side of Gabor analysis, which in fact is also the basis for implementations and fast algorithms. (Received September 20, 2009)