The Eberlein Compactification of the Heisenberg Type Group $\mathbb{Z} \times \mathbb{T} \times \mathbb{T}$

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Abstract:

Given a locally compact group G, the *Eberlein compactification* G^e is the spectrum of the uniform closure of the Fourier-Stieltjes algebra $B(G)$. Hence, it is the semigroup compactification related to the unitary representations of G. G^e is a semitopological semigroup compactification and thus a quotient of the weakly almost periodic compactification of G. In this talk we aim to study the Eberlein compactification of the group $\mathbb{Z} \times \mathbb{T} \times \mathbb{T}$ equipped with Heisenberg type multiplication. First, we will see that transitivity properties of the action of $\mathbb{Z} \times \mathbb{T}$ on the central subgroup $\mathbb{T}$ force some aspects of the structure of $(\mathbb{Z} \times \mathbb{T} \times \mathbb{T})^e$ to be quite simple. On the other hand, we will observe that the Eberlein compactification of the direct product group $\mathbb{Z} \times \mathbb{T}$ is large with a complicated structure, and can be realized as a quotient of the Eberlein compactification $(\mathbb{Z} \times \mathbb{T} \times \mathbb{T})^e$.

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