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The Eberlein Compactification of Locally Compact Groups

Given a locally compact group G, the Eberlein compactification G^e is the spectrum of the uniform closure of the Fourier-Stieltjes algebra $B(G)$. It is a semitopological compactification and thus a quotient of the weakly almost periodic compactification G^w. We aim to study the structure and complexity of G^e. On one hand, for certain abelian groups, weak*-closed subsemigroups of $L^\infty[0,1]$ may be realised as quotients of G^e, thus showing that G^e is large and complicated in these situations. Conversely, the structures of G^e for certain semidirect product groups show that aspects of the structure of G^e can be quite simple. The levels of complexity complexity of these structures mimic those of G^w, yet many questions about the sizes of their differences remain.