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Projective Operator Spaces, Almost Periodicity and Completely Complemented

The concept of an operator space or quantized Banach space has proved to be extremely useful in addressing problems in Abstract Harmonic Analysis. In this talk we will focus on the operator space analog of Grothendieck's notion of projectivity for Banach spaces. We will show how projective operator spaces arise naturally as spaces of almost periodic functions. In particular, we will show that a locally compact group is compact if and only if its Fourier–Stieltjes algebra (or equivalently its Fourier algebra $A(G)$) is projective as an operator space. From this we see that if K is a compact subgroup of G, then the ideal $I(K)$ of functions in $A(G)$ vanishing on K is completely complemented in $A(G)$.