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Abstracts of Short Communications and Posters

Section:

8. Analysis

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Helemskii, A. Ya., Moscow State University, Russia:
Description of projective Hilbert modules over C^*-algebras
A *Hilbert module* over a C^*-algebra A is a Hilbert space with an involutive representation of A. We present a complete description of *projective* (as Banach A-modules) Hilbert A-modules. In particular, such a module is isomorphic to a Hilbert sum of principal ideals in A, generated by minimal projections, with a finite number of summands, isomorphic to the same infinite-dimensional module.
As a corollary, we describe all *spatially projective* operator C^*-algebras on H (i. e. those with projective H). In particular, an irreducible A is spatially projective iff $A \supseteq \mathcal{K}(H)$. The standard form of $\mathcal{B}(H); \dim H = \infty$ is not spatially projective.
Applications to the cohomology of C^*-algebras, related to the similarity representation problem, will be discussed.