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Weakly continuous Hilbert bundles

If Δ is a Stonean space and if $(\Delta, \{H_s\}_{s \in \Delta}, \Omega)$ is a continuous Hilbert bundle over Δ , then there is an associated set Ω_{wk} of vector fields that satisfy continuity properties relative to the weak topology of the Hilbert space fibres H_s .

We prove that this set of vector fields carries the structure of a Kaplansky–Hilbert module over $C(\Delta)$ and that the algebra $B(\Omega_{\text{wk}})$ of bounded (adjointable) endomorphisms of Ω_{wk} is a type I AW*-algebra. Further, we show that $B(\Omega_{\text{wk}})$ is the injective envelope and second-order local multiplier algebra of the C^* -algebra $K(\Omega)$ of compact endomorphisms of the Hilbert C^* -module Ω . In fact, $B(\Omega_{\text{wk}}) = M_{\text{loc}}(M_{\text{loc}}(A)) = I(A)$ for the spatial continuous trace C^* -algebra A induced by the continuous Hilbert bundle $(\Delta, \{H_s\}_{s \in \Delta}, \Omega)$.

This is joint work with M. Argerami and P. Massey.