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SEPARABLE C^*-ALGEBRAS AND WEAK* FIXED POINT PROPERTY

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Abstract: We show that the spectrum $\widehat{A}$ of a separable C^*-algebra A is discrete if and only if A^*, the Banach space dual of A, has the weak* fixed point property. We prove further that these properties are equivalent among others to the uniform weak* Kadec-Klee property of A^* and to the coincidence of the weak* topology with the norm topology on the pure states of A. If one assumes the set-theoretic diamond axiom, then the separability is necessary.

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