1027-47-60 **William Arveson*** (arveson@math.berkeley.edu), Department of Mathematics, University of California, Berkeley, CA 94720. *The noncommutative Choquet boundary.*

Let S be an operator system – a self-adjoint linear subspace of a unital C*-algebra A such that contains 1 and $A = C*(S)$ is generated by S. A boundary representation for S is an irreducible representation π of $C*(S)$ on a Hilbert space with the property that $\pi \restriction_S$ has a unique completely positive extension to $C*(S)$. The set ∂_S of all (unitary equivalence classes of) boundary representations is the noncommutative counterpart of the Choquet boundary of a function system $S \subseteq C(X)$ that separates points of X.

It is known that the closure of the Choquet boundary of a function system S is the Silov boundary of X relative to S. The corresponding noncommutative problem of whether every operator system has "sufficiently many" boundary representations was formulated in 1969, but has remained unsolved despite progress on related issues. In particular, it was unknown if ∂_S is nonempty for generic S. In this paper we show that every separable operator system has sufficiently many boundary representations. Our methods use separability in an essential way. (Received February 12, 2007)