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Compact inverse semigroups

W. D. Munn proved that a finite dimensional representation of an inverse semigroup is equivalent to a partial unitary representation if and only if it is bounded. The first goal of this talk will be to give new analytic proof that every finite dimensional representation of a compact inverse semigroup is equivalent to a partial unitary representation.

The second goal is to parameterize all finite dimensional irreducible representations of a compact inverse semigroup in terms of maximal subgroups and order theoretic properties of the idempotent set. As a consequence, we obtain a new and simple proof of the following theorem of Shneperman: a compact inverse semigroup has enough finite dimensional irreducible representations to separate points if and only if its idempotent set is totally disconnected.