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*Tracial state spaces of higher stable rank simple  $C^*$ -algebras*

The first examples of simple  $C^*$ -algebras with stable rank other than one or infinity were given by Villadsen, 10 years ago. Since then, other examples have been found (Toms); all of the existing examples admit a unique tracial state. It is therefore natural to ask whether examples can be found of simple  $C^*$ -algebras with higher stable rank (including infinity) and more than one tracial state. I'll describe examples of such algebras that admit arbitrary tracial state spaces, and some of the difficulties involved in constructing these examples.