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*C\*-simplicity and the unique trace property for discrete groups*

In joint work with M. Kalantar, we established necessary and sufficient conditions for the simplicity of the reduced  $C^*$ -algebra of a discrete group. More recently, in joint work with E. Breuillard, M. Kalantar and N. Ozawa, we proved that any tracial state on the reduced  $C^*$ -algebra of a discrete group is supported on the amenable radical. Hence every  $C^*$ -simple group has the unique trace property. I will discuss these results, along with some applications.