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The Cuntz semigroup and the classification of C*-algebras

An important class of C*-algebras (that announced by George Elliott in early 1990s) has been recently classified by means of K-theory. This class is referred to as the class of $\mathcal{Z}$-stable C*-algebras. However examples of C*-algebras have been shown to exist outside of this class, requiring an enlargement of the Elliott invariant. There is evidence that the Cuntz semigroup is useful in the classification theory. In this talk I will discuss the Cuntz semigroup as an invariant for C*-algebras and its applications to the classification theory.