Prix G. de B. Robinson Award 2010

The G. de B. Robinson Award was inaugurated to recognize the publication of excellent papers in the Canadian Journal of Mathematics and the Canadian Mathematical Bulletin and to encourage the submission of the highest quality papers to these journals. The first award was presented in 1996.

Le prix G. de B. Robinson rend hommage aux mathématiciens qui se sont distingués par l'excellence de leurs articles parus dans le Journal canadien de mathématiques et le Bulletin canadien de mathématiques, et vise à encourager la présentation d'articles de première qualité pour ces revues. Il a été décerné pour la première fois en 1996.

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Le document apporte une contribution importante au programme (Elliott) à classer les \(C^\ast\)-algèbres simples, séparables et nucléaires par leur invariance en \(K\)-théorie.

The Jiang-Su algebra (the \(Z\) in the title) is a simple \(C^\ast\)-algebra which is $\mathbb{Z}$-stably equivalent to $\mathbb{C}$. $A\times\mathbb{Z}$ is $\mathbb{Z}$-stable if it is isomorphic to its tensor product with $\mathbb{Z}$. It is conjectured that the $\mathbb{Z}$-stable, separable, nuclear $C^\ast$-algebras are the set of $\mathbb{Z}$-algebras which are classifiable by their $K$-theory.

ASH algebras are $\mathbb{Z}$-algebras which can be obtained as inductive limits of subalgebras of homogenous $\mathbb{C}^\ast$-algebras, which are spaces of functions with values in a matrix algebra. This technical property has been verified for a wide class of $\mathbb{C}^\ast$-algebras, and it is a key device for many of the deep results in the discipline. In this paper, a large class of ASH algebras including those which were known to be classifiable are shown to be $\mathbb{Z}$-stable, even when they are not approximately divisible.

These results led to more recent work by the authors showing that if a minimal homeomorphism of an infinite compact, finite dimensional metric space $X$, then the crossed product $C(X)\times\mathbb{Z}$ is $\mathbb{Z}$-stable. This allows the use of $K$-theory invariants to analyze these dynamical systems.

Andrew Toms was born in Montreal in 1975, and was raised on Prince Edward Island. He attended Queen’s University as an undergraduate and obtained his Ph.D. from the University of Toronto in 2002. After holding faculty positions at the University of New Brunswick and York University, he was appointed Associate Professor in the Department of Mathematics at Purdue University in 2010. Toms’ mathematical interests include the classification of $C^\ast$-algebras and points of contact between operator algebras, logic, and topology.

Wilhelm Winter was born in Germany in 1968; he studied mathematics and physics at the Universities of Heidelberg and Muenster, where he received his PhD in 2000. He continued to work in Muenster until his Habilitation in 2006. Since 2007 he holds a lectureship at the University of Nottingham, UK.

The collaboration between Toms and Winter commenced in 2003, and has since resulted in a series of seven joint papers.