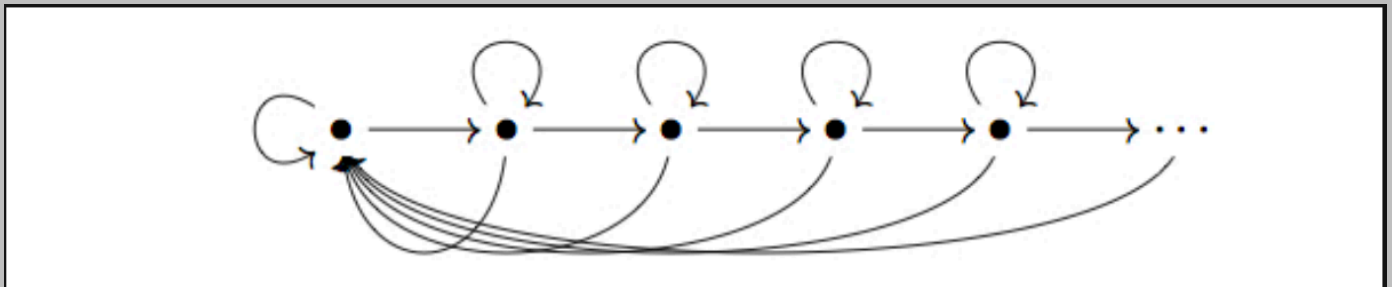


UCCS Department of Mathematics
Math Colloquium Series

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DATE: MARCH 5, 2020 **TIME:** 12:30PM **LOCATION:** UC #122



Classification of Graph Algebras

Abstract: In functional analysis, algebras of operators closed under the adjoint operation $*$ are known as C^* -algebras. C^* -algebras have been instrumental in the formulation of quantum mechanics (and later, quantum computation), and they have also found important applications to many diverse areas of mathematics.

Over the past three decades, a method for constructing C^* -algebras from directed graphs has been introduced and studied, and these graph C^* -algebras have emerged as a class that is simultaneously large and tractable. It has been discovered that the graph not only summarizes the defining relations for generators, but it also provides tools for analyzing and codifying the structure of the C^* -algebra. Based on the successes of graph C^* -algebras, researchers have also introduced algebraic counterparts, known as Leavitt path algebras, for which many similar results have been obtained. However, the exact relationship between graph C^* -algebras and Leavitt path algebras remains mysterious. In the past few years great strides have been made in the classification of these two classes of graph algebras, on both the algebraic and the functional analysis sides. These classification results have illuminated the relationships among not only the graph, the algebra, and the C^* -algebra, but also among related objects such as the graph groupoid, the shift space of the graph, and the diagonal subalgebra of the C^* -algebra.

This talk will consist of two parts. First: a very friendly and accessible introduction to the construction of graph algebras, describing both motivation for and consequences of the defining relations; and Second: a survey of recent results and techniques used for the classification of graph C^* -algebras and Leavitt path algebras.

For more information please contact the UCCS Math Department at
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