



The ARCS Seminar

Recasting the Hazrat Conjecture: Graded Morita equivalence of Leavitt path algebras

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Abstract: One of the most important (perhaps *the* most important) unresolved questions in Leavitt path algebras is known as “Hazrat’s Conjecture”. Informally, the Conjecture states that information about the graded projective modules over $L_K(E)$ is enough to determine all the graded modules over $L_K(E)$. More formally, the Hazrat Conjecture posits that, for finite, sink-free graphs E and F , a $\mathbb{Z}[x, x^{-1}]$ -module isomorphism between the graded Grothendieck groups $K_0^{gr}(L_K(E))$ and $K_0^{gr}(L_K(F))$ yields a graded Morita equivalence between $L_K(E)$ and $L_K(F)$.

In this talk I’ll describe some recent work (joint with Efren Ruiz and Mark Tomforde) which admittedly does not resolve the Conjecture, but instead recasts it from a different (perhaps useful-in-the-future) point of view.

I will spend the first portion of the talk describing shift spaces and shift equivalence of graphs. From there, the notion of shift equivalence of matrices will be presented. This will put us in position to state the Hazrat Conjecture. The last portion of the talk will be devoted to giving an outline of a new possible attack on the Conjecture.

The talk should be accessible to anyone who has seen a first course in abstract algebra. Indeed, knowledge of Leavitt path algebras or categories or symbolic dynamics other topics commonly presented in the UCCS Algebra Seminar will be nice to have, but by no means necessary.

Time and Place: Wednesday, April 24 from 4:30–5:30PM (Mountain Time Zone) in ENG 187



The Rings and Wings Seminar is an activity of ARCS.

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