

ON THE SIMPLICITY AND K -THEORY OF THE L^p OPERATOR ALGEBRAS $\mathcal{O}^p(Q)$

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For $p \in [1, \infty)$ and a row finite graph Q , we define a class of representations ρ of the Leavitt algebra $L(Q)$ on spaces of the form $L^p(X, \mu)$, which we call the spatial representations. We prove that for fixed p and Q such that $L(Q)$ is simple and purely infinite, the L^p operator algebra $\mathcal{O}^p(Q) = \overline{\rho(L(Q))}$ is the same for the all spatial representations ρ . When the graph Q is the rose with d petals, we recover the results given by C. Phillips in 2012, in particular for $p = 2$ the Cuntz algebra \mathcal{O}_d appears.

We give conditions for the simplicity of $\mathcal{O}^p(Q)$ as L^p operator algebra and we calculate its K -theory.

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