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Elizabeth Gillaspy* (elizabeth.gillaspy@colorado.edu) and **Jianchao Wu**. *Cubical = Categorical*.

Higher-rank graphs (k -graphs) are category theoretic objects which can also be viewed as generalizations of directed graphs. In order to better understand the C^* -algebras associated to k -graphs, Kumjian, Pask, and Sims introduced two cohomology theories for k -graphs. Using ad hoc methods, Kumjian, Pask, and Sims showed that the i th categorical and cubical cohomology groups of a k -graph Λ are isomorphic for $i \leq 2$.

This talk presents recent joint work with Jianchao Wu, in which we show that for all $i \in \mathbb{N}$, the i th cubical and categorical cohomology groups of any k -graph Λ are isomorphic. This proves a conjecture posed by Kumjian, Pask, and Sims in 2015. Our proof relies on the topological realization of a k -graph (as defined by Kaliszewski, Kumjian, Quigg, and Sims) and the reformulation of categorical cohomology using Λ -modules, as introduced by Gillaspy and Kumjian.

Time permitting, we will also explain how this result leads to a more thorough understanding of the cohomology of the groupoid associated to Λ (under the additional hypothesis that Λ be row-finite and source-free). (Received August 15, 2016)