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Jing Wang* (gwjwang@gwu.edu) and **Jozef H. Przytycki** (przytyck@gwu.edu). *Homology of Small Categories and Its Applications to Quiver Cohomology.*

Motivated from knot theory, we introduce a homology theory for small categories with functor coefficients. Under this general framework, different familiar homology theories such as group homology, chromatic homology, poset homology and Khovanov homology can be realized as homology of small categories whose coefficients are specified functors. For the category of an abstract simplicial complex, we define chain groups via two different approaches and prove that these two definitions are equivalent in the sense that homology groups under these two definitions are isomorphic via an interpretation of barycentric subdivision. As an application, we develop cohomology theory for quivers (directed graphs). We introduce quiver cohomology for non-commutative algebras motivated by Wagner and Turner's work. We analyze and speculate on properties of the quiver cohomology groups via some calculations. (Received January 19, 2015)