Edward L. Green, *Convex Algebras*

This is joint work with Eduardo N. Marcos. Given a full subquiver $\mathcal{L}$ of a quiver $\mathcal{Q}$ and a K-algebra $\Lambda = K\mathcal{Q}/I$, we define the *algebra associated to* $\mathcal{L}$ *and* Λ to be $\Gamma = \Lambda/(\Lambda e'\Lambda)$, where e' is the sum of the vertices in $\mathcal{Q}_0 \setminus \mathcal{L}_0$. If $\mathcal{L}$ is convex then Λ and Γ have a strong homological connection which we describe. In particular, there is special convex subquiver $\mathcal{H}$ of $\mathcal{Q}$ which we call the *homological heart of* $\mathcal{Q}$. We show that if Γ is the algebra associated to $\mathcal{H}$ and Λ, then

(1) the global dimension of Λ is finite if and only if the global dimension of Γ is finite, and
(2) the finitistic dimension of Λ is finite if and only if the finitistic dimension of Γ is finite.