COMPLEXES OF FIXED SIZE AND THE STRONG GLOBAL DIMENSION AND ITS RELATIONS WITH THE DERIVED CATEGORIES

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Let $\mathbb{Z}$ be the integer numbers, ąn algebraically closed field, Λ a finite dimensional ¸algebra, modΛ the category of finitely generated right modules, projΛ the full subcategory of modΛ consisting of all projective objects, and $\mathrm{C}_n(\mathrm{proj}\Lambda)$ the bounded complexes of projective Λ-modules of fixed size for an integer $n \geq 2$. We describe an algorithm to calculate the strong global dimension of Λ, when Λ has finite strong global dimension and is derived-discrete, by using the Auslander-Reiten quiver of the category $\mathrm{C}_n(\mathrm{proj}\Lambda)$. Moreover, we also show the relationship between the Auslander-Reiten quiver of the bounded derived category $\mathrm{D}^b(\mathrm{mod}\,\Lambda)$ and the Auslander-Reiten quiver of $\mathrm{C}_{\eta+1}(\mathrm{proj}\Lambda)$, where η is the strong global dimension of Λ.

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