The Gorenstein flat model structure relative to a semidualizing module

Rachid El Maaouy

(CeReMaR Research Center, Faculty of Sciences, B.P. 1014, Mohammed V University in Rabat, Rabat, Morocco)

E-mail: `elmaaouy.rachid@gmail.com`

Driss Bennis

(CeReMaR Research Center, Faculty of Sciences, B.P. 1014, Mohammed V University in Rabat, Rabat, Morocco)

E-mail: `driss.bennis@um5.ac.ma`

J. R. Garcia Rozas

(Departamento de Matematicas, Universidad de Almeria, 04071 Almeria, Spain)

E-mail: `jrgrozas@ual.es`

Luis Oyonarte

(Departamento de Matematicas, Universidad de Almeria, 04071 Almeria, Spain)

E-mail: `oyonarte@ual.es`

Abstract.

A model structure on a category is a formal way of introducing a homotopy theory on that category, and if the model structure is abelian and hereditary, its homotopy category is known to be triangulated. So a good way to both build and model a triangulated category is to build a hereditary abelian model structure.

Let R be a ring and C be a left R-module. In this talk, we construct a unique hereditary abelian model structure on the category of left R-modules, in which the cofibrations are the monomorphisms with G_C-flat cokernel and the fibrations are the epimorphisms with $\mathcal{C}_C$-cotorsion kernel belonging to the Bass class $\mathcal{B}_C(R)$.

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