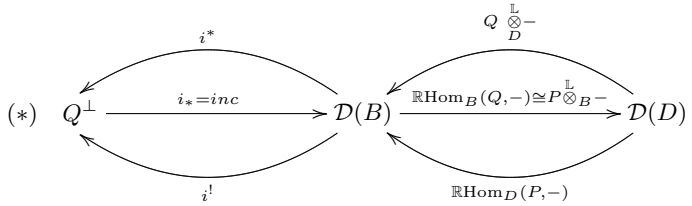
RECOLLEMENTS FROM PARTIAL TILTING COMPLEXES

Alice Pavarin
Joint work with Silvana Bazzoni

Abstract. From [DG], [Mi] and [J] it is known that every compact object Q of the derived category $\mathcal{D}(B)$ of a dg-algebra gives rise to a recollement of triangulated categories of the form



with $P = \mathbb{R}\mathrm{Hom}_B(Q, B)$.

Following [NS] we show that the left hand term of the recollement above is equivalent to the derived category of a dg algebra C linked to B by a homological epimorphism and we study the TTF triple associated to the recollement. A particular case of $(*)$ gives a generalization of the Morita-type theorem proved by Rickard in [R].

As an application we obtain the same result as in [BMT] but with much weaker assumptions. Moreover, our setting generalizes to the case of infinitely generated n-tilting modules, the results proved recently by [CX] for 1-tilting modules. Finally we characterize when the left hand term of $(*)$ is exactly a ring, introducing the concept of "generalized universal localization".

References

[BMT] S. Bazzoni, F. Mantese, and A. Tonolo. Derived equivalence induced by infinitely generated n-tilting modules. *Proc. Amer. Math. Soc.*, 139(12): 4225Ð4234, 2011.

[CX] H.X. Chen and C.C. Xi. Good tilting modules and recollements of derived module categoires. *Proc. Lond. Math. Soc, to appear* , 104(2):397–409, 1986. Preprint is available at: http://math.bnu.edu.cn/?ccxi/, 2010.

[DG] W.G. Dwyer and J.P.C. Greenlees. Complete modules and torsion modules. *Amer. J. Math.*, 124: 199Ð220, 2002.

[J] P. Jørgensen. Recollements for differential graded algebras. *J. Algebra*, 299: 401–419, 1991.

[Mi] J. Miyachi. Localization of triangulated categories and derived categories. *J. Algebra*, 141(2): 463–483, 1991

[R] J. Rickard. Morita theory for derived categories. *J. London Math. Soc. (2)*, 39(3):436–456, 1989.

[NS] P. Nicolas and M. Saorin, *Parametrizing recollements data for tringulated categories,* J. Algebra **322** (2009), no.4, 1220-1250.