1147-16-343       **Lars Winther Christensen\*** (`lars.w.christensen@ttu.edu`), **Sergio Estrada** and **Peder Thompson**. *Total acyclicity and flat-cotorsion theory.* Preliminary report.

We develop a theory of total acyclicity related to a cotorsion pair in an abelian category. Applied to the classical pair (Flat,Cotorsion) in a module category it justifies a trend, already established in the literature, to focus on flat-cotorsion modules rather than all flat modules.

The cycle submodules in totally acyclic complexes are called Gorenstein modules. Our approach uncovers strong parallels between Gorenstein modules in totally acyclic complexes of projective modules and Gorenstein modules in totally acyclic complexes of flat-cotorsion modules: their associated stable categories are equivalent under mild assumptions on the ring. (Received January 20, 2019)