Triangulated Categories

Chiara Sava

4 Giugno 2021

The reason why we are interested in studying triangulated categories is that they are, or at least should be, the underlying structure of any (co)homology theory, i.e. a structure that can be analyzed by long exact sequences. Then, we will see the axioms that define a triangulated category and some relevant properties. In particular, we will give the example of the homotopy category that is relevant because it allows us to define derived categories. In the end of the seminar we will find a triangulated structure in the particular case of a Frobenius category $\mathcal{C}$, starting from the defining properties. We will discover that its stable category $\underline{\mathcal{C}}$ coincides with the associated homotopy category $K(\mathcal{C})$.

References

[1] Schapira, Pierre (20/03/2015), *Categories and Homological Algebra*.

[2] Dieter Happel, *Triangulated categories in the representation theory of finite-dimensional algebras*, Cambridge University Press, Cambridge, 1988.