

# Tensor products of finitely cocomplete and abelian categories

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In [1] a tensor product of abelian categories is introduced, to the effect that the tensor product of  $R\text{-Mod}_f$  with  $S\text{-Mod}_f$  is equivalent to  $(R \otimes S)\text{-Mod}_f$ , for finite-dimensional algebras  $R, S$  over a field  $k$ . This tensor product—usually called Deligne’s tensor product—has been widely applied, especially in Hopf algebra theory. Although the definition of Deligne’s tensor product is similar to the one of the tensor product of finitely cocomplete categories, [1] does not prove its existence in full generality. In this talk we answer two related questions: when do these two tensor products coincide, and when do the tensor product of [1] exist.

## REFERENCES

- [1] Deligne, P., *Catégories tannakiennes*. In *The Grothendieck Festschrift, Vol. II*, vol. 87 of Progr. Math., 111–195. Birkhäuser Boston, MA, 1990.