## Categorical aspects of K-theory for operator algebras

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We present some categorical aspects of K-theories for operator algebras (K, KK and E) that have played a crucial role in the development of the field.

A compelling example is the way the question if Kasparov's bivariant K-theory is exact or not, was tackled. The negative answer was provided by Skandalis by means of an example, but meanwhile Higson had shown that such a theory exists. A concrete description have been found by Connes and Higson using asymptotic morphisms, which later have been used as the main ingredient in the proof of the Baum-Connes conjecture for amenable groups.

We present some results in the equivariant setting, and some related questions which have appeared lately.

## References

- A. Connes and N. Higson, Déformations, morphismes asymptotiques et K-théorie bivariante, C. R. Acad. Sci. Paris Sr. I Math. 311 (1990), no. 2, 101–106.
- [2] N. Higson, Categories of fractions and excision in KK-theory, J. Pure Appl. Algebra 65 (1990), no. 2, 119–138.
- [3] R. Popescu, Coactions of Hopf C\*-algebras and equivariant E-theory, front.math.ucdavis.edu/math.KT/0410023.
- [4] G. Skandalis, Le bifoncteur de Kasparov n'est pas exact, C. R. Acad. Sci. Paris Sr. I Math. 313 (1991), no. 13, 939–941.