THE FIELDS INSTITUTE
FOR RESEARCH IN MATHEMATICAL SCIENCES

ABSTRACTS 1.2

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Iterated extensions and length categories your preferred talk length (50-60)

Consider a length category (in the sense of Gabriel) of modules over an associative k-algebra R, where k is a fixed algebraically closed field. In order to study this length category, we introduce the category of iterated extensions of the simple objects in the given length category (following Laudal). We also introduce a new invariant which refines the usual dimension vector in the length category, this new invariant appears naturally in the category of iterated extensions. The aim of this talk is to explain how one might use iterated extensions to study the given length category. One advantage of this approach is that the iterated extensions are very closely related to non-commutative deformations of modules. As an example of this approach, we give an elementary proof of the (known) numerical condition for a given length category to be uniserial.