Conférence
« ARTA III : Avancées en théorie des représentations des algèbres »
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Meeting
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On generalisations of N-Koszul algebras for Brauer graph algebras

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Koszul algebras are a well-known and much studied class of algebras. These were generalised in 2001 by Roland Berger to N-Koszul algebras. This means that if we write the algebra as a quotient of a tensor algebra $A = T_k(V)/I$, the ideal I can be generated by elements of degree N and that the projective modules in a minimal graded projective resolution of k can be generated in specific degrees depending on N. Moreover, the Ext algebra of k is generated in degrees 0, 1 and 2.

This notion has been generalised since in several ways. We are interested in two of them:

- an algebra is called K_2 if it is graded and if its Ext algebra is generated in degrees 0, 1 and 2 [Cassidy—Shelton];

- an algebra $A = T_k(V)/I$ is called 2-d-determined if the ideal I can be generated by elements of degrees 2 and d, where $\mathrm{d} > 2$ is an integer, and the projective modules in a minimal graded projective resolution of k can be generated in specific degrees depending on 2 and d [Green—Marcos].

The aim of this talk is to give examples of such algebras, within the class of Brauer graph algebras, and to compare K_2 Brauer graph algebras and $2-\mathrm{d}$-determined Brauer graph algebras.

Joint work with E.L. Green, S. Schroll and N. Snashall.

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