
Fukaya categories associated with graded surfaces and gentle algebras

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Résumé

To a graded surface (i.e. surface endowed with a line field), and with marked points on its boundary, Haiden, Katzarkov and Kontsevich have associated in 2014 a certain A-infinity category called the partially wrapped Fukaya category. This series of lectures will focus on this construction and its links with the derived categories of gentle algebras. In a first part, I will give the definition of A-infinity categories, and illustrate this notion with the A-infinity structure of the category given by a system of graded arcs on a graded surface which can be understood combinatorially. In a second part, I will explain the construction of twisted complexes of A-infinity categories and how two systems of graded arcs on the same surface give rise to a Morita equivalence. In a third part, I will explain the notion of formal generator, and give the link with gentle algebras. Finally, I will explain how to generalize these constructions for certain graded orbifolds, which is a collaboration with Pierre-Guy Plamondon.

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