# Vanishing Cycles for mirabolic D-modules

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Mirabolic D-modules are certain analogues of Lusztig's character sheaves and their definition is motivated by the problem of trying to understand category O for the trigonometric Cherednik algebra. I will describe how one can use the functor of vanishing cycles to study mirabolic D-modules. It is also possible to define an analogue of vanishing cycles functors for modules over the trigonometric Cherednik algebra. Then it can be shown that the functor of Hamiltonian reduction, which relates mirabolic D-modules with modules from category O, intertwines the geometric vanishing cycles functors with the vanishing cycles functors for the trigonometric Cherednik algebra. The talk is based on joint work with Victor Ginzburg.