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Saeed Nasseh* (snasseh@georgiasouthern.edu). *DG homological algebra and vanishing of Ext over local rings*. Preliminary report.

The use of techniques from differential graded (DG) homological algebra was established by Avramov, Buchsbaum, Eisenbud, Foxby, Halperin, Kustin, Miller, and Weyman in commutative algebra. It has been shown recently that these techniques can be applied to solve non-trivial problems in commutative algebra. These applications include a solution to a conjecture posed by Vasconcelos in 1974 about semidualizing modules given by Nasseh and Sather-Wagstaff and introducing several new classes of commutative local rings by Avramov, Iyengar, Nasseh, and Sather-Wagstaff that satisfy the Auslander-Reiten Conjecture.

In this talk, we will give a brief survey of these results along with discussing some progress on the (weak) lifting problem of DG modules and its relation to the Auslander-Reiten Conjecture. This is based on a joint work with Maiko Ono and Yuji Yoshino. (Received February 17, 2020)