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Castelnuovo-Mumford regularity and Kazhdan-Lusztig varieties

We give an explicit formula for the degree of a vexillary Grothendieck polynomial. We apply our work to compute the Castelnuovo-Mumford regularity of certain matrix Schubert varieties. We also derive a formula for the regularity of mixed one-sided ladder determinantal ideals. This is joint work with Jenna Rajchgot and Anna Weigandt.