1100-15-349   **Victor Camillo** and **Miodrag C Iovanov*** (`miodrag-iovanov@uiowa.edu`). *On the representatives of the left "regular" Gl_n action and algebraic semigroup structures of the Grassmannians.* Preliminary report.

Row reduced matrices are one of the basic structures that are of unquestionable importance and have applications in many places outside of mathematics. It is perhaps less known (or used) that they are also closed under multiplication, and form a monoid. We show that the row reduced matrices are in fact characterized almost entirely by being set of representatives for the Gl_n action, and closed under multiplication. We determine all such monoid structures - that we call annihilator semigroups, and show they are "simultaneously echelonizable" and very close to row reduced matrices. This also allows one to view the total Grassmaniann G(n) on an n dimensional space as an algebraic semigroup, that is graded by a certain semigroup Π whose 2^n elements are Young tableaux, and the graded components of G(n) are exactly the Schubert cells. Time permitting, we present other results on the structure of these annihilator semigroups, their classification up to isomorphism, and relations to other important mathematical objects as the plactic monoid and Gl_n representations. (Received February 10, 2014)

1