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Sonja Petrovic* (petrovic@ms.uky.edu), 719 Patterson Office Tower, University of Kentucky, Lexington, KY 40506. *Universal Gröbner bases of varieties of minimal degree.*

A universal Gröbner basis of an ideal is the union of all its reduced Gröbner bases. It is contained in the Graver basis, the set of all primitive elements. Obtaining an explicit description of either of these sets, or even a sharp degree bound for their elements, is a nontrivial task.

In their '95 paper, Graham, Diaconis and Sturmfels give a nice combinatorial description of the Graver basis for any rational normal curve in terms of primitive partition identities. This result is extended here to rational normal scrolls. The description of the Graver bases is given in terms of *colored* partition identities. This leads to a sharp bound on the degree of Graver basis elements, which is always attained by a circuit. Moreover, the circuits equal the Graver basis for scrolls of sufficiently high dimension.

Finally, for any variety obtained from a scroll by a sequence of projections to some of the coordinate hyperplanes, the degree of any element in any reduced Gröbner basis is bounded by the degree of the variety. (Received September 18, 2007)