1012-05-77   **Michael Develin**, **Jeremy Martin** and **Victor Reiner*** (`reiner@math.umn.edu`), School of Mathematics, University of Minnesota, Minneapolis, MN 55424. *Rook theory and classification of Schubert varieties.*

Consider the following classification problems for Schubert varieties within the type A_{n-1} complete flag variety $GL_n(\mathbf{C})/B$:

(1) Up to isomorphism as varieties.

(2) Up to homeomorphism.

(3) Up to algebra-isomorphism of their cohomology rings.

(4) Up to poset-isomorphism of their posets of Schubert cells.

(5) Up to additive-isomorphism of their cohomology groups.

This talk will discuss recent work performing this classification within a restricted subclass of Schubert varieties indexed by Ferrers diagrams, namely those considered by K. Ding, or alternatively, those whose Schubert classes are represented by dominant Schubert polynomials. Within this class, the classification for (1),(2),(3) coincide, while the classifications for (4) and (5) are different from these and from each other. The answers are all closely related to the (now-classical) theory of rook placements on Ferrers boards. (Received September 08, 2005)