1000-05-160   **Sara C. Billey*** (`billey@math.washington.edu`), University of Washington, Box 354350, Seattle, WA 98195, and **Ravi Vakil**, Stanford University, Palo Alto, CA. *Intersecting Schubert Varieties.*
Using a blend of combinatorics and geometry, we give an algorithm for finding all flags in any zero dimensional intersection of Schubert varieties with respect to three transverse flags. In particular, the number of flags in a triple intersection is also a structure constant for products of Schubert cycles in the cohomology ring of the flag manifold. Our algorithm is based on solving a limited number of determinantal equations for each intersection. These equations are also sufficient for computing Galois groups and monodromy of intersections of Schubert varieties. We are able to limit the number of equations by using the structure of *permutation arrays* as defined by Eriksson and Linusson. We show that there exists a unique permutation array corresponding to each realizable Schubert problem and give a simple recurrence relation to compute the corresponding rank table. We also give two interesting counterexamples to the Realizability Conjecture of Eriksson and Linusson in using 4 flags in $\mathbb{R}^4$ and Pappus's Hexagon Theorem along with 9 flags in $\mathbb{R}^3$. (Received August 23, 2004)