BRETT NASSERDEN, McMaster University
Frobenius splittings of certain K-orbit closures

Matrix Schubert varieties are orbit closures for the action of two Borel subgroups on matrix space. In positive characteristic, the standard Frobenius splitting constructed via Bott–Samelson varieties induces a splitting of matrix space, realized as a Bruhat cell, that preserves every matrix Schubert ideal. We use Barbasch–Evens–Magyar varieties to study the analogous splitting problem for orbits of $\mathrm{GL}_a \times \mathrm{GL}_b$ and Sp_{2n} on flag varieties. In the symplectic case, we apply these methods to study skew-symmetric matrix Schubert varieties and their squarefree Gröbner degenerations.