1056-20-434   **Christopher P. Bendel*** (`bendelc@uwstout.edu`), MSCS Department, 721 East Third Street, Menomonie, WI 54751, **Daniel K. Nakano**, Department of Mathematics, University of Georgia, Athens, GA 30602, and **Cornelius Pillen**, Department of Mathematics and Statistics, University of South Alabama, Mobile, AL 36688. *Vanishing ranges for the cohomology of finite groups of Lie type.*

Let $G(\mathbb{F}_q)$ be a finite Chevalley group defined over the field of $q = p^r$ elements, and k be an algebraically closed field of characteristic $p > 0$. A fundamental open and elusive problem has been the computation of the cohomology ring $H^\bullet(G(\mathbb{F}_q), k)$. In this talk, we will discuss recent work on determining initial vanishing ranges when p is larger than the Coxeter number. For certain root systems, the first non-trivial cohomology classes are determined. The determination makes use of techniques involving line bundle cohomology for the flag variety G/B and its relation to combinatorial data from Kostant Partition Functions. (Received September 07, 2009)