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**Christopher P. Bendel, Daniel K. Nakano and Cornelius Pillen\***

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A long-standing open problem of major interest for algebraists and topologists has been to determine the cohomology rings of finite groups of Lie type in the so-called defining characteristic. Little is known in general about these rings. Being far from well-understood, the cohomologies of the corresponding Lie algebras and Frobenius kernels, nevertheless, are better understood theories that can be used as a tool for investigations into the cohomology rings of finite groups. Recently developed methods and techniques in linking these theories will be presented. (Received February 15, 2010)