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Joshua E Ducey* (duceyje@jmu.edu), 60 Bluestone Dr, MSC 1911, Roop Hall 339,
Harrisonburg, VA 22807. *The Smith group and the critical group of the Grassmann graph of lines
in a finite projective space.*

The Smith group and critical group of a graph are the groups presented by the Smith normal form of an adjacency or Laplacian matrix of the graph, respectively. In this talk methods of representation theory are applied to compute these for the Grassmann graph on 2-dimensional subspaces of a finite vector space. The corresponding invariants of the complement (skew lines) graph are also computed. The same basic technique can be applied to compute critical groups of Kneser graphs, using some modular representation theory of the symmetric group. (Received January 27, 2019)