Amanda A. Schaeffer Fry, Stephen J Trefethen and C. Ryan Vinroot* (vinroot@math.wm.edu). Jordan decomposition map and Galois action for finite reductive groups in the disconnected center case. Preliminary report.

Let $G$ be a connected reductive group over the algebraic closure of a finite field, $F$ a Frobenius endomorphism of $G$, and let $G = G^F$ be the associated finite reductive group. In the case that the center of $G$ is connected, Digne and Michel described a Jordan decomposition map for the complex characters of $G$ which is unique with respect to a certain list of properties. We extend this result to the case that the center of $G$ is not necessarily connected, but for the Lusztig series for semisimple classes $(s)$, where $s$ is in the dual group $G^*$ such that the centralizer $C_{G^*}(s)$ is connected. We show that this Jordan decomposition map is well-behaved with respect to the action of the absolute Galois group acting on the complex irreducible characters. (Received August 10, 2020)