1086-20-2094 **Bhama Srinivasan** and **C. Ryan Vinroot***, College of William and Mary, Department of Mathematics, P. O. Box 8795, Williamsburg, VA 23187. *Jordan decomposition and real-valued characters.*

Let $\mathbf{G}$ be a connected reductive group defined over a finite field $\mathbb{F}_q$ by Frobenius map F, and let $G = \mathbf{G}^F$. The Jordan decomposition of characters of G gives a correspondence between complex irreducible characters of G, and pairs (s, ψ), where s is a semisimple element of the dual group G^*, and ψ is a unipotent character of the centralizer $C_{G^*}(s)$, which has certain invariance properties with respect to Deligne-Lusztig induction. If s is a real element of G^*, let $h \in G^*$ such that $hsh^{-1} = s^{-1}$, then given a unipotent character ψ of $C_{G^*}(s)$, the character ${}^h\psi$, defined by ${}^h\psi(x) = \psi(h^{-1}xh)$, is also a unipotent character of $C_{G^*}(s)$. We conjecture that an irreducible character of G corresponding to the pair (s, ψ) is real-valued if and only if s is a real element of G^*, and ${}^h\psi = \bar{\psi}$, where $hsh^{-1} = s^{-1}$. We give a proof of this conjecture in the case that $\mathbf{G}$ has connected center and $C_{G^*}(s)$ is a Levi subgroup of G^*. (Received September 24, 2012)