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Semileptonic Decay of Λ_c Baryon in Constituent Quark Model MD MOZAMMEL HUSSAIN, WINSTON ROBERTS, Florida State University — Hadronic form factors for semileptonic decay of heavy Λ_c are calculated in non relativistic quark model. The full quark model wavefunctions are employed to numerically calculate the form factors to all order. The form factors are compared with the heavy quark effective theory (HQET) form factors. The differential decay rates, branching fractions are calulcated for $\Lambda_c \to \Lambda^* l\nu_l$, $\Lambda_c \to \Lambda^* l\nu_l \to \Sigma\pi l\nu_l$ and $\Lambda_c \to \Lambda^* l\nu_l \to NKl\nu_l$, for transitions to both ground state and allowed excited states of Λ^*. $\Lambda_c \to \Lambda(1405)$ is found to be the dominant mode other than the ground state, with a significant contribution to the branching fraction of $\Lambda_c \to X_s l\nu_l$. A new estimate for $f = B(\Lambda_c^+ \to \Lambda l^+\nu_l)/B(\Lambda_c^+ \to X_s l^+\nu_l)$ is obtained which is significantly small compared to the particle data group (PDG) estimate ($f = 1$).

Md Mozammel Hussain
Florida State University

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