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PHZ4390
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Bonus Question 3

Due Friday, Sep. 20, 2013

1. (3 pts) Draw the Feynman diagram for $J/\psi \rightarrow \mu^+ \mu^-$. What fundamental force mediates this decay?
2. (3 pts) Draw the Feynman diagram for $\psi(3770) \rightarrow D^+ D^-$. What fundamental force mediates this decay?
3. (3 pts) Draw the Feynman diagram for $\tau^- \rightarrow \nu_\tau \mu^- \bar{\nu}_\mu$. What fundamental force mediates this decay?
4. (1 pt) Why is the decay rate for $\tau^- \rightarrow \nu_\tau \mu^- \bar{\nu}_\mu$ expected to be slightly less than that for $\tau^- \rightarrow \nu_\tau e^- \bar{\nu}_e$ (ratio is 97.23%)?