Chemistry 2302

In-Class Exercise Solutions Electrophilic Aromatic Substitution Mechanisms

$$\begin{array}{c}
CH_3 \\
\hline
CH_3
\\
\hline
\Theta_0 \\
\hline
N \\
\hline
H
\end{array}$$

$$\bigoplus_{\substack{O \\ \bigoplus_{N} \\ \text{HO}_3 \text{SO}}} CH_3$$

$$\downarrow_{NO_2}$$

$$\downarrow_{NO_2}$$

$$\downarrow_{NO_2}$$

$$\downarrow_{NO_2}$$

This resonance structure places the positive charge at the 3° carbon. So, as we discussed for the *ortho*-addition intermediate we discussed in class, this cation is stabilized by hyperconjugation, and the *para*-substitution product is favored.