

Problem 2-14

$$\oint_{\text{gs}} \vec{E} \cdot d\vec{A} = \frac{q_{\text{enc}}}{\epsilon_0} \Rightarrow E(4\pi r^2) = \frac{4\pi C}{\epsilon_0} \int_{r=0}^r r r^2 dr = \frac{4\pi C}{\epsilon_0} \frac{r^4}{4} \Rightarrow \vec{E} = \frac{Cr^2}{4\epsilon_0} \hat{r}$$