

Special Problem 7-4.2

The **current density** in a given region is:

$$\mathbf{J}(\bar{r}) = \begin{cases} 0 & \rho < 2m \\ \frac{4\rho^2}{\mu_0} \hat{a}_z & 2m < \rho < 3m \quad [A/m^2] \\ 0 & \rho > 3m \end{cases}$$

Determine the **magnetic flux density** produced by this $\mathbf{J}(\bar{r})$.