



取半径为 r 的柱形高斯面

① $0 < r < R_1$

$$\oint \vec{E}_1 \cdot d\vec{S} = \frac{\Sigma q}{\epsilon_0}$$

$$E_1 \cdot 2\pi r L = \frac{0}{\epsilon_0}$$

$$E_1 = 0$$

② $R_1 < r < R_2$

$$\oint \vec{E}_2 \cdot d\vec{S} = \frac{\Sigma q}{\epsilon_0}$$

$$E_2 = \frac{\lambda_1}{2\pi r}$$

③ $r > R_3$

$$\oint \vec{E}_3 \cdot d\vec{S} = \frac{\Sigma q}{\epsilon_0}$$

$$E_3 \cdot 2\pi r L = \frac{(\lambda_1 + \lambda_2)L}{\epsilon_0}$$

$$E_3 = \frac{\lambda_1 + \lambda_2}{2\pi \epsilon_0 r}$$