

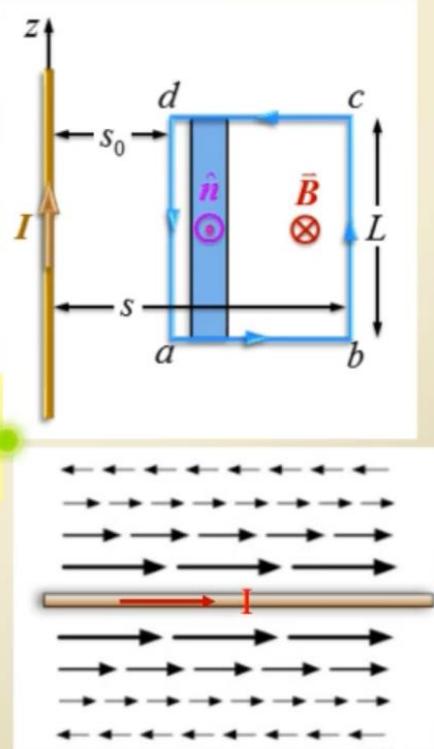
例：试求无限长载流直导线的矢量势。

解：对称性 $\rightarrow \vec{A} = A(s)\hat{z}$

$$\oint_C \vec{A} \cdot d\vec{l} = \left(\int_a^b + \int_b^c + \int_c^d + \int_d^a \right) \vec{A} \cdot d\vec{l} = 0 + A(s)L + 0 - A(s_0)L$$

$$\iint_S \vec{B} \cdot d\vec{S} = - \int_{s_0}^s \frac{\mu_0 I}{2\pi s} L ds = - \frac{\mu_0 I}{2\pi} L \ln \frac{s}{s_0}$$

$$\rightarrow A(s) = - \frac{\mu_0 I}{2\pi} \ln s + \text{const.}$$



用 BSL 定律求解