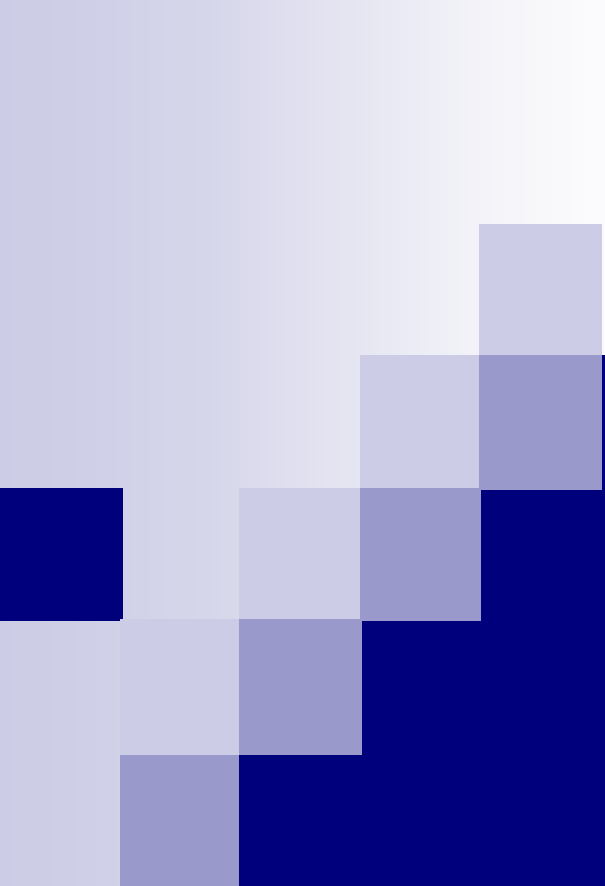
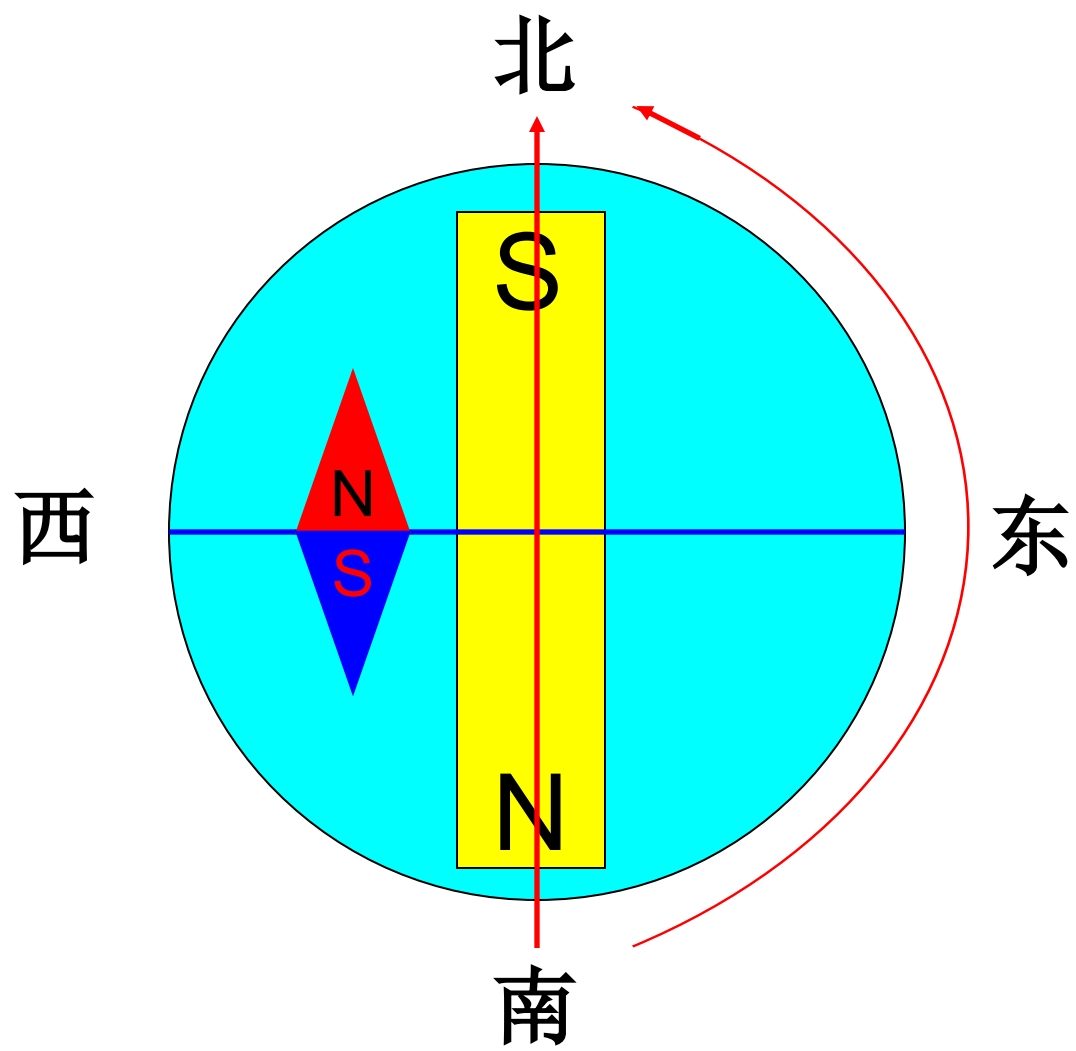
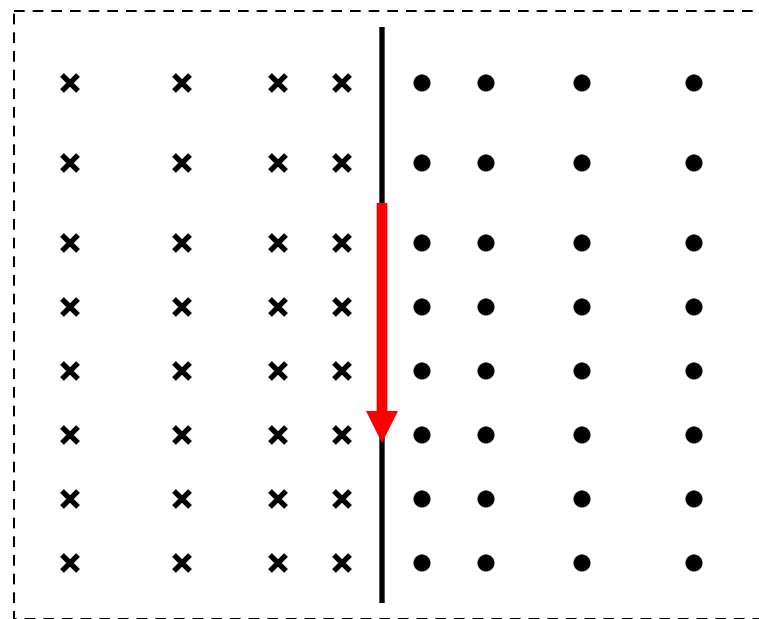
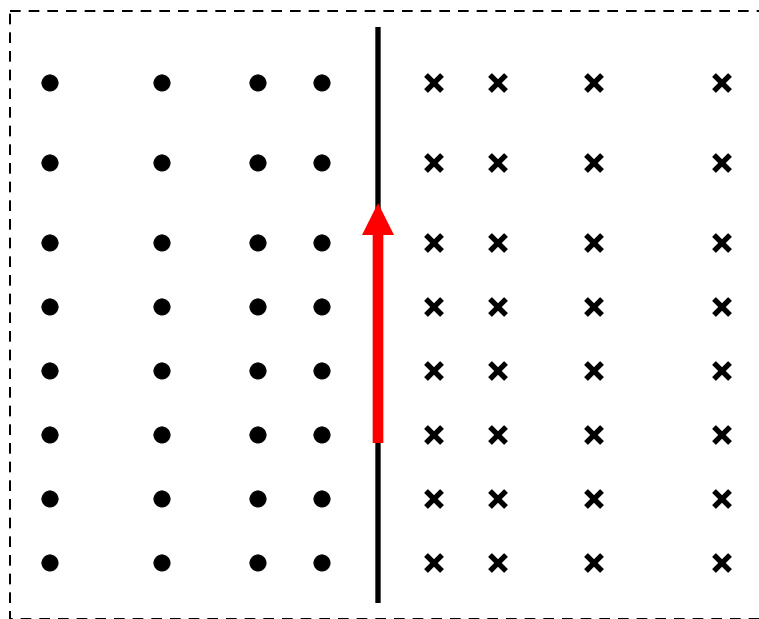
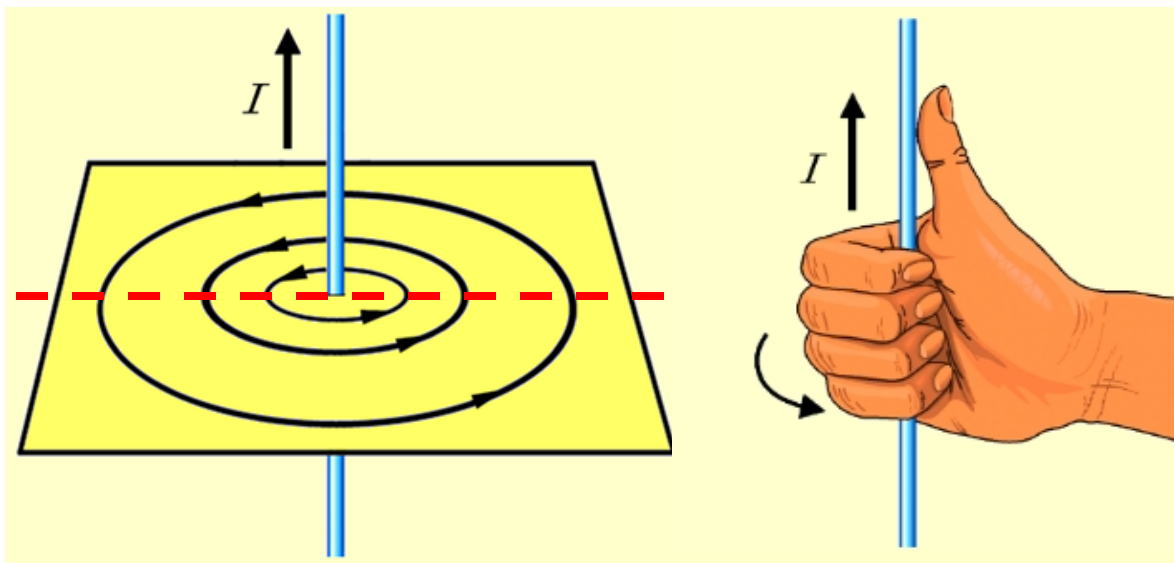




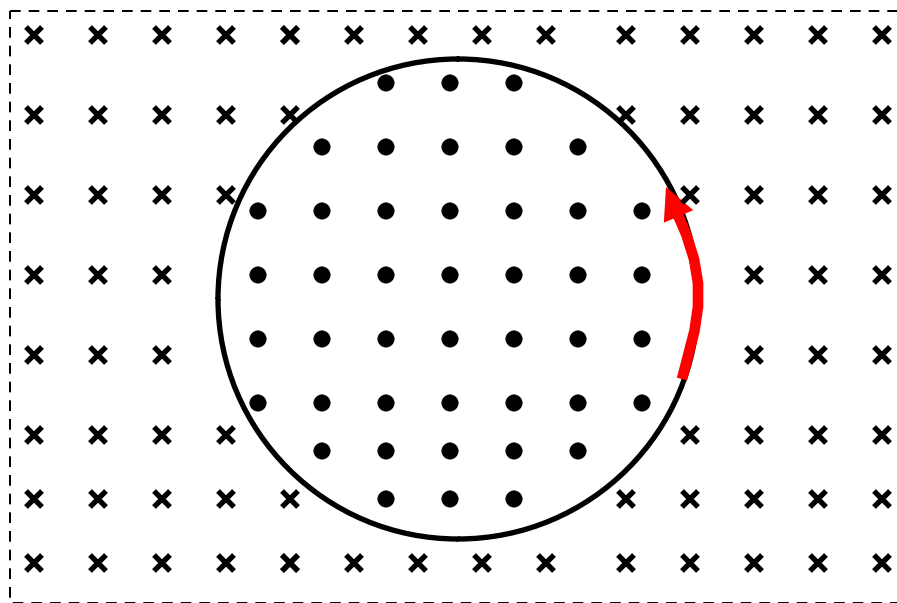
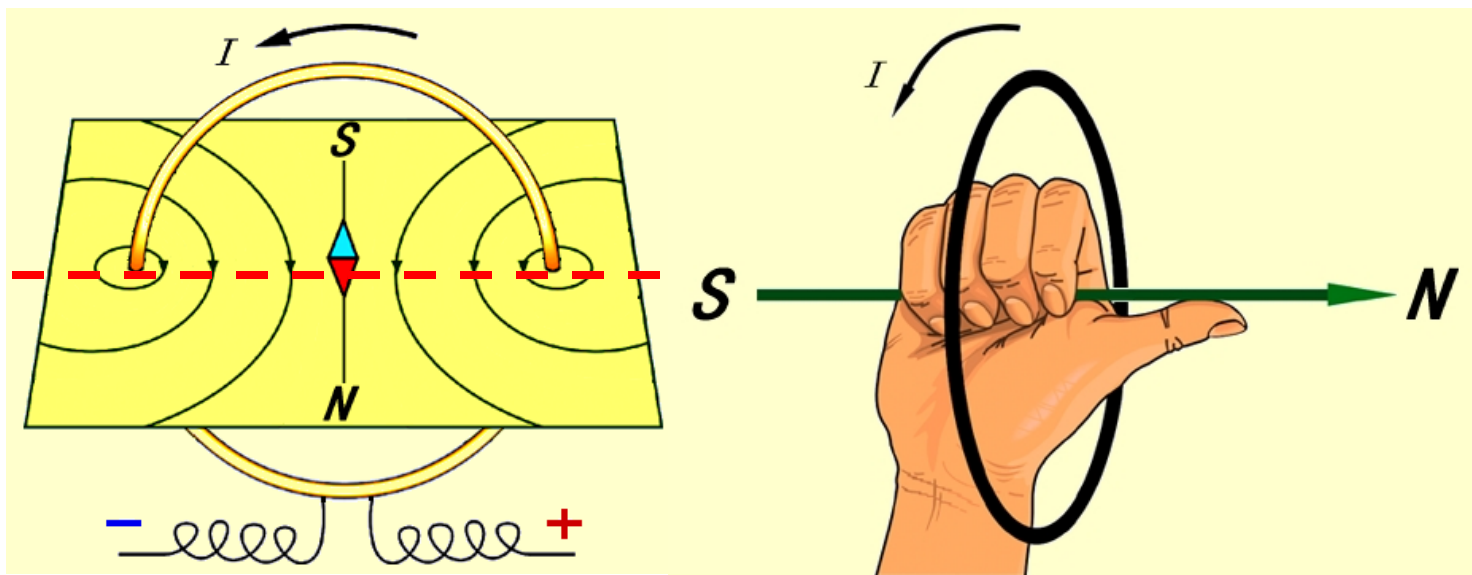
# 磁 场



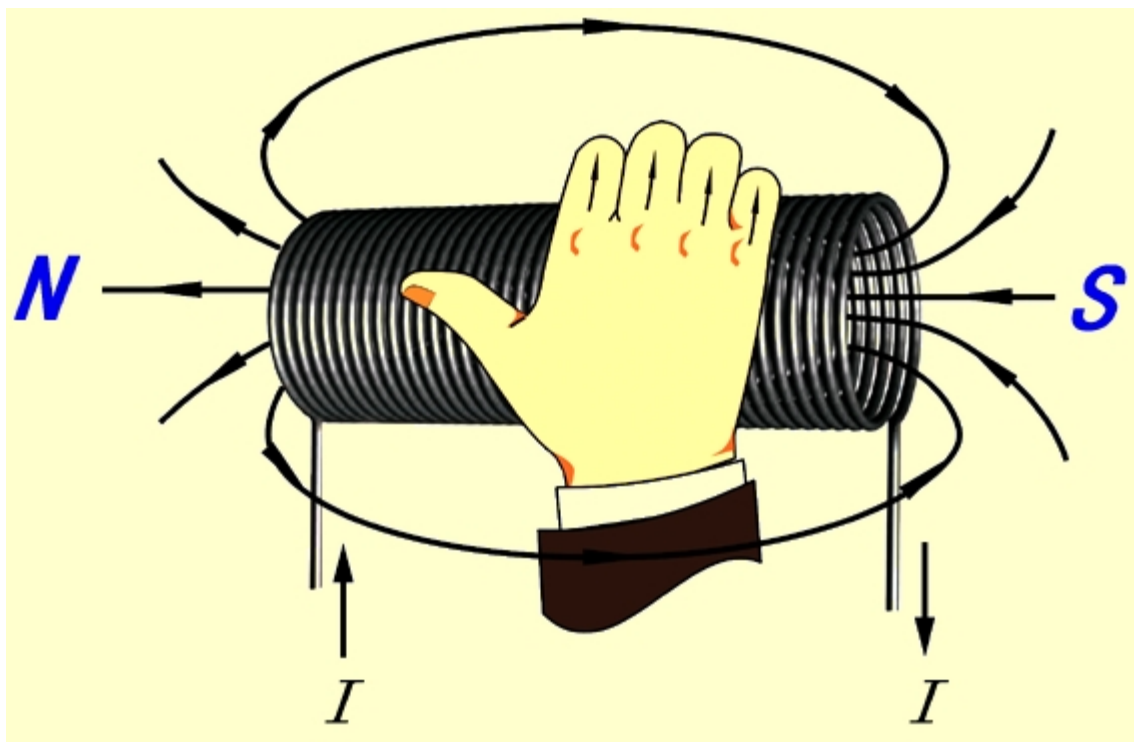
# 直线电流产生的磁感线

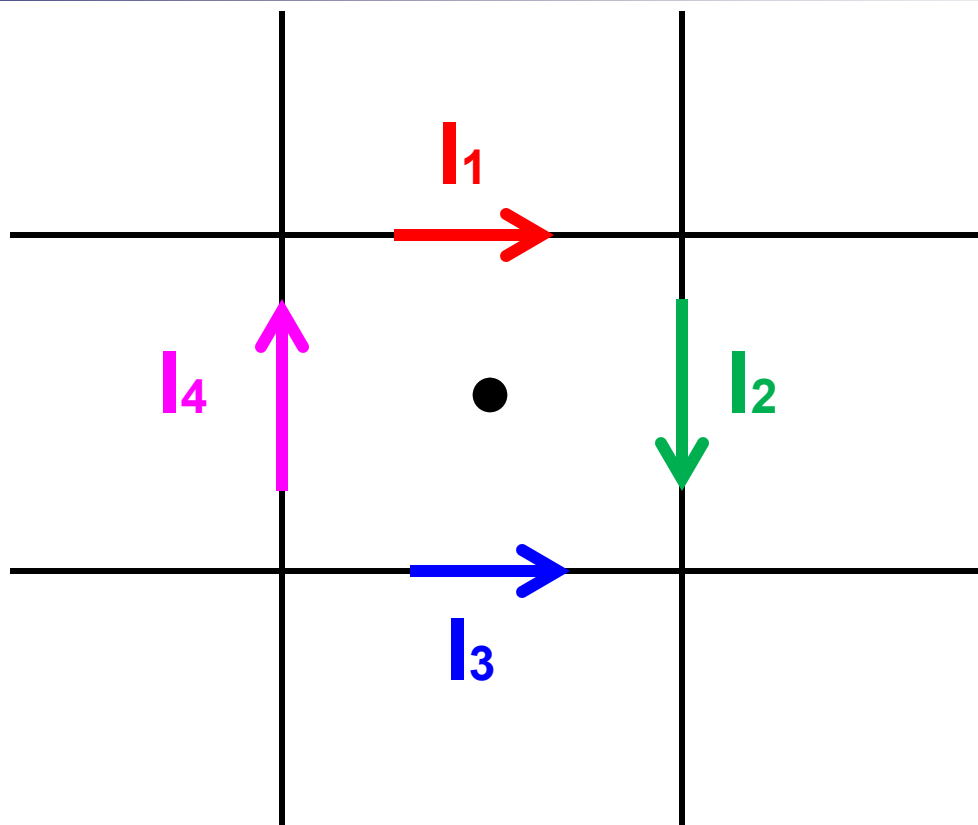


## 环形电流产生的磁感线



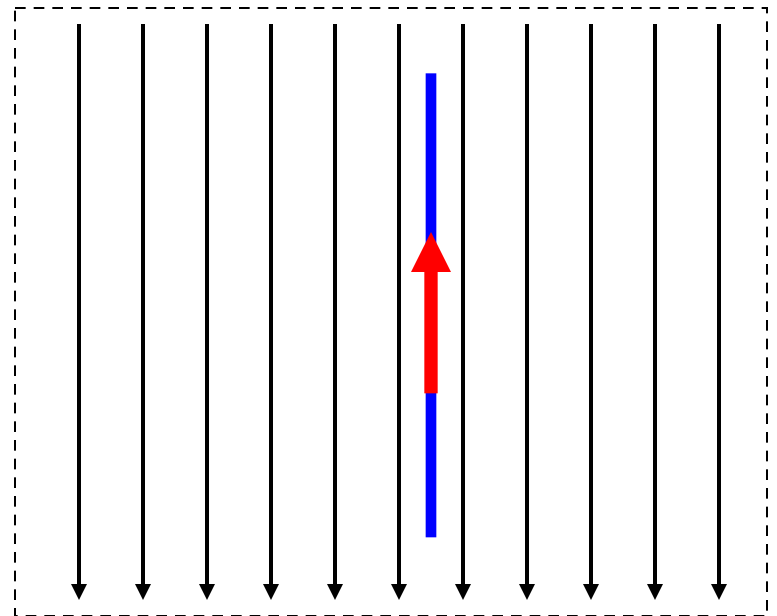
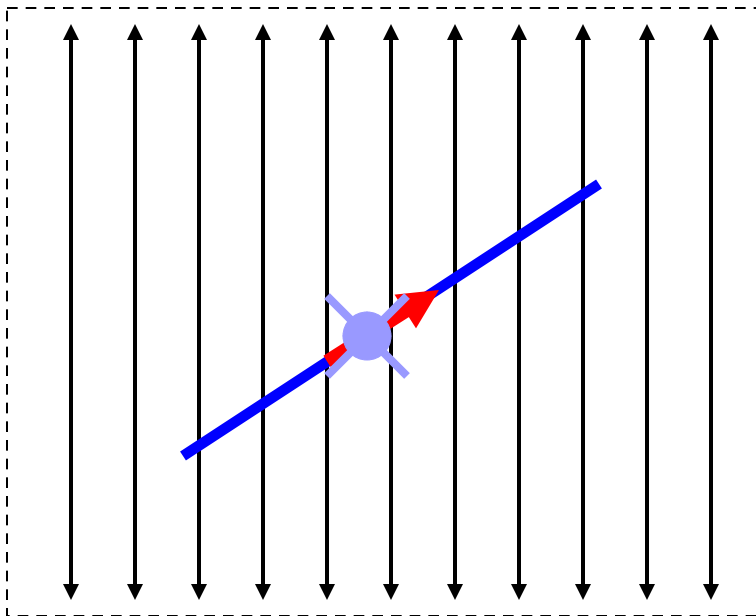
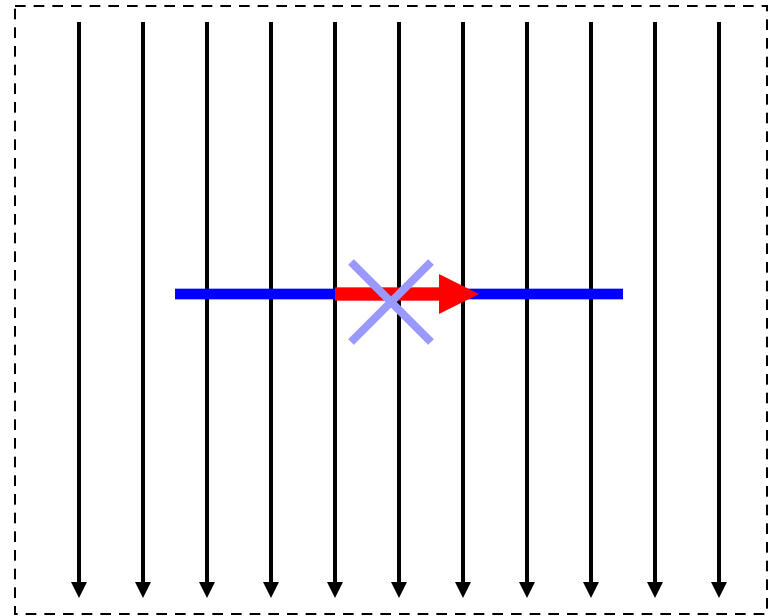
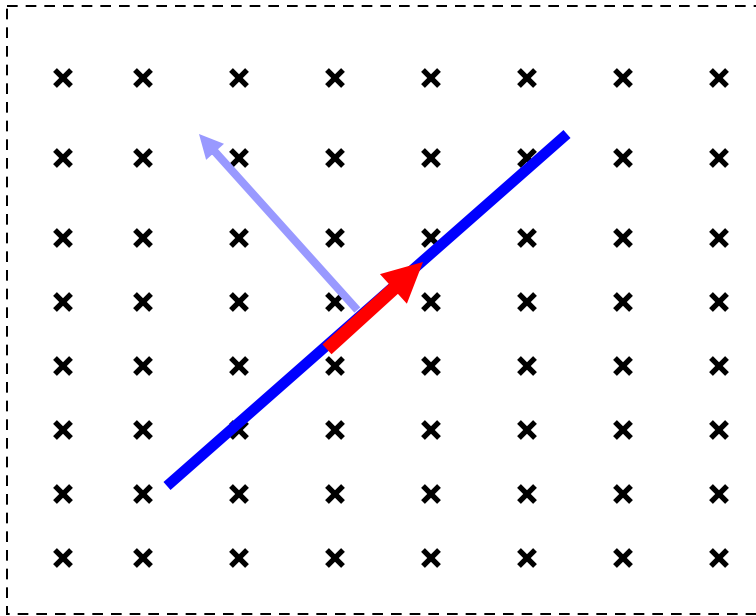
## 螺线管电流产生的磁感线





撤去哪条电流可使图中黑点处磁场增强

?



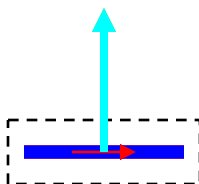
电流元 (IL) <sub>1</sub>



电流元 (IL) <sub>2</sub>



$F_{A2}$



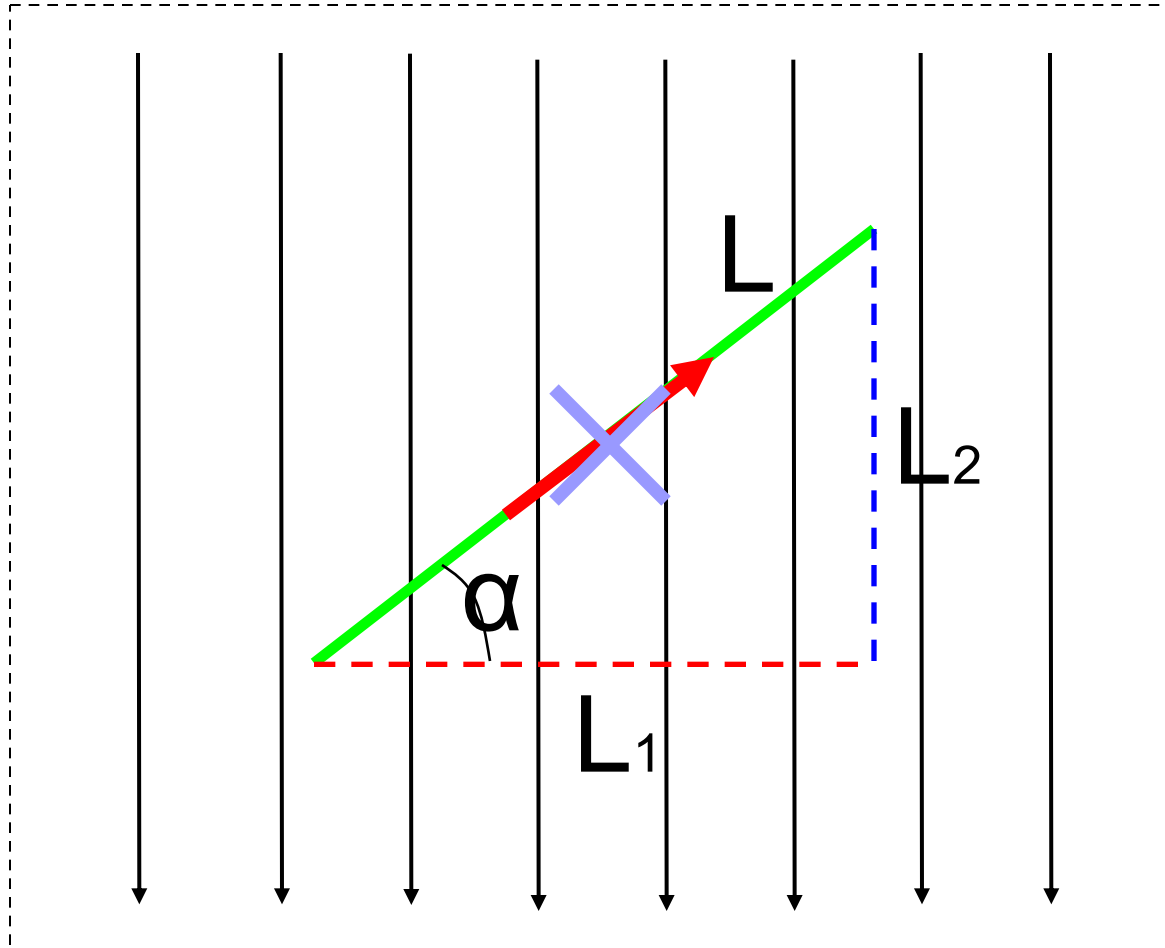
磁体或电流

$$? = \frac{F_{A1}}{(IL)_1} = \frac{F_{A2}}{(IL)_2}$$

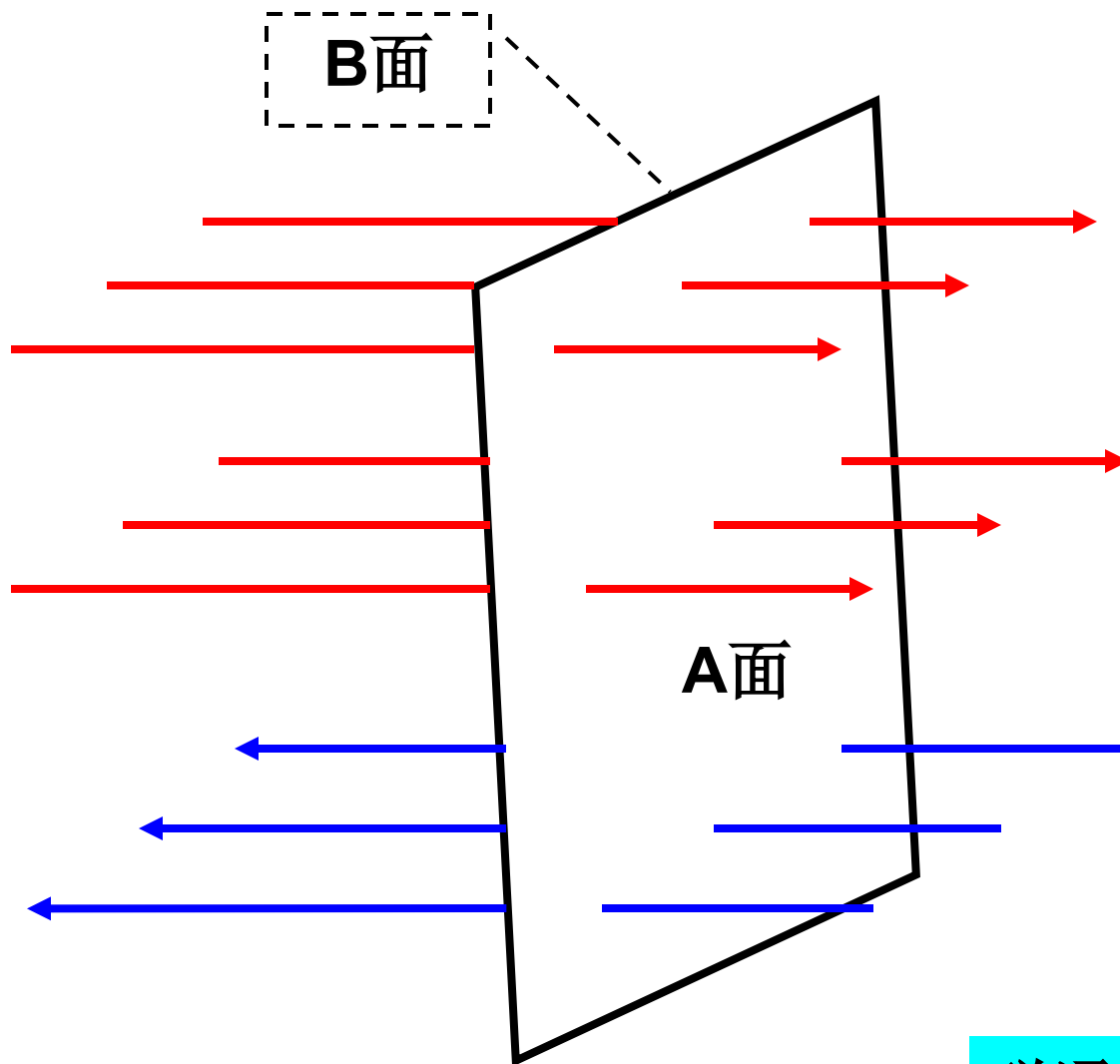
磁感应强度**B**仅仅由场源（磁体或电流）  
决定，与放入的电流元无关！

人们规定：磁感应强度**B**的方  
向与**小磁针北极**受力方向相同。

$$B = \frac{F_A}{IL}$$

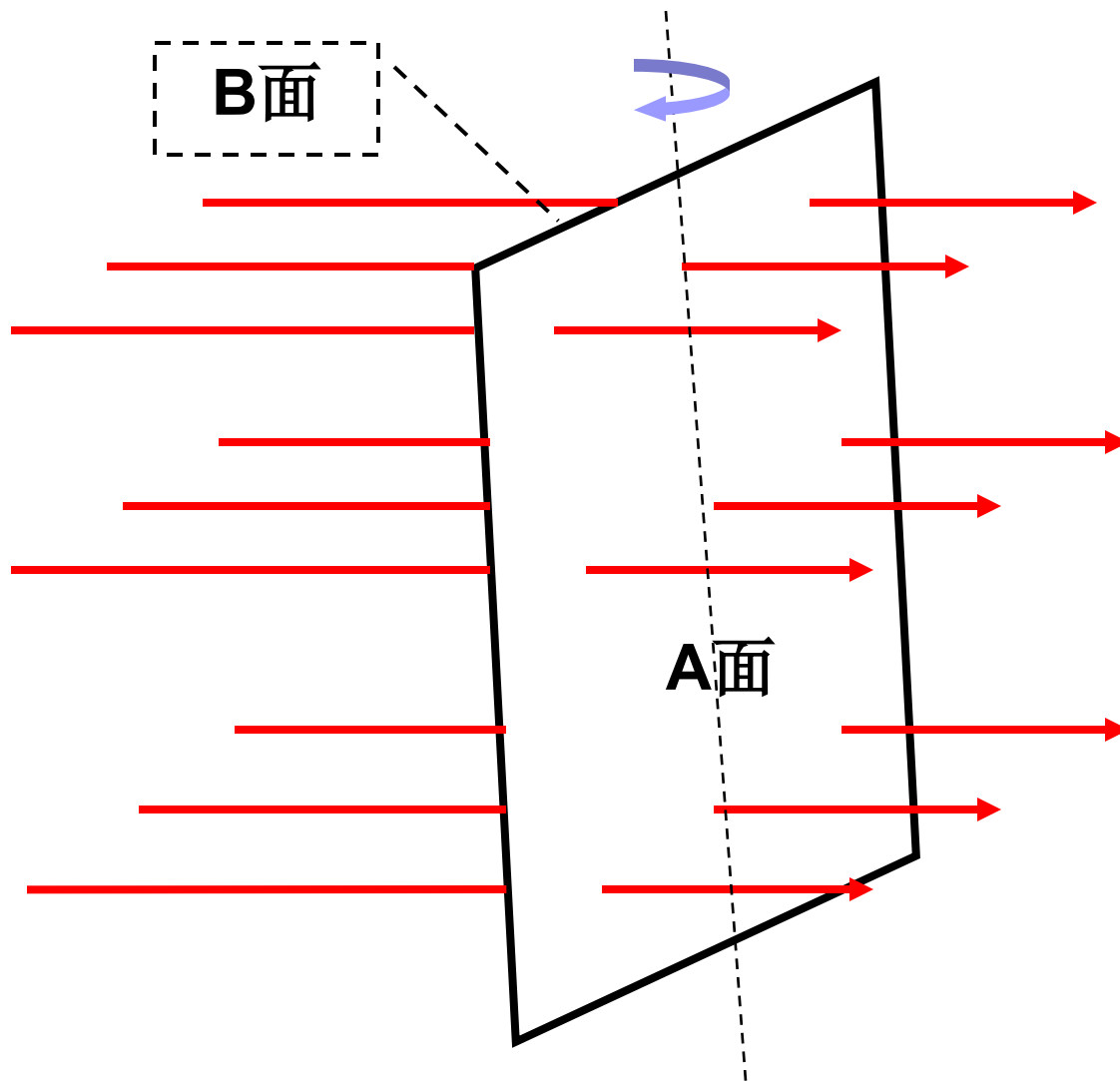


$$F_A = BIL_1 = BIL \cos \alpha$$



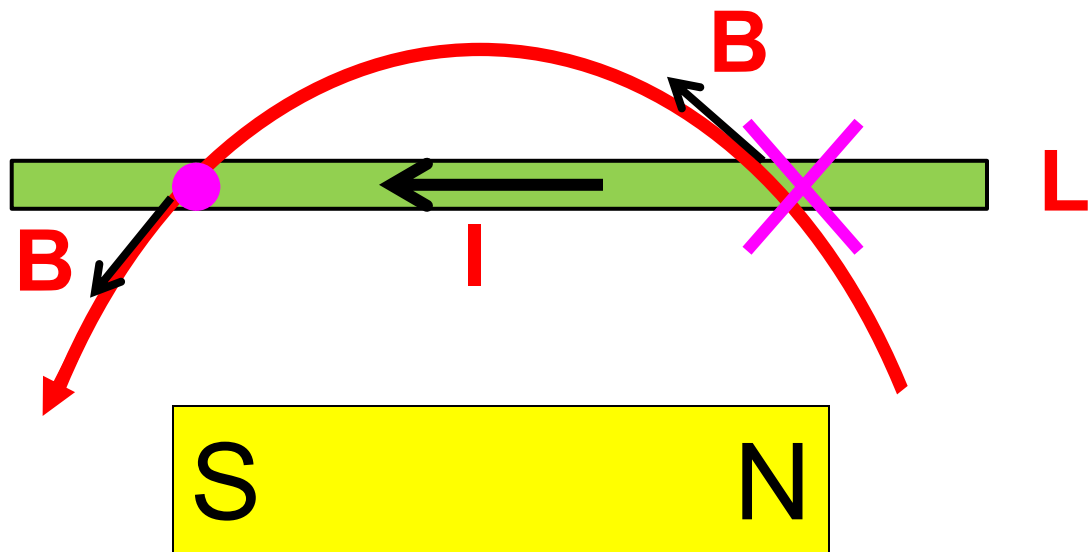
设磁感线由B面  
穿过A面为正

磁通量有正负，但它  
是标量，没有方向！

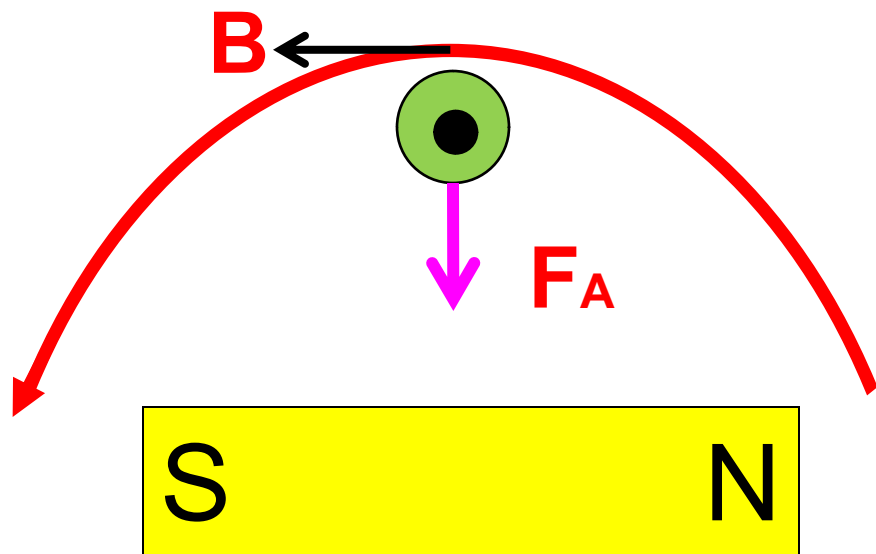


设磁感线由B面  
穿过A面为正

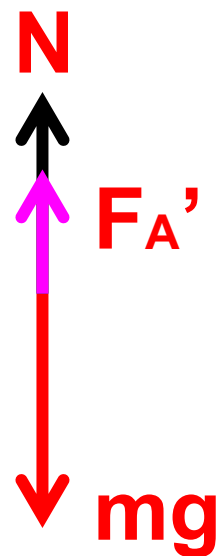
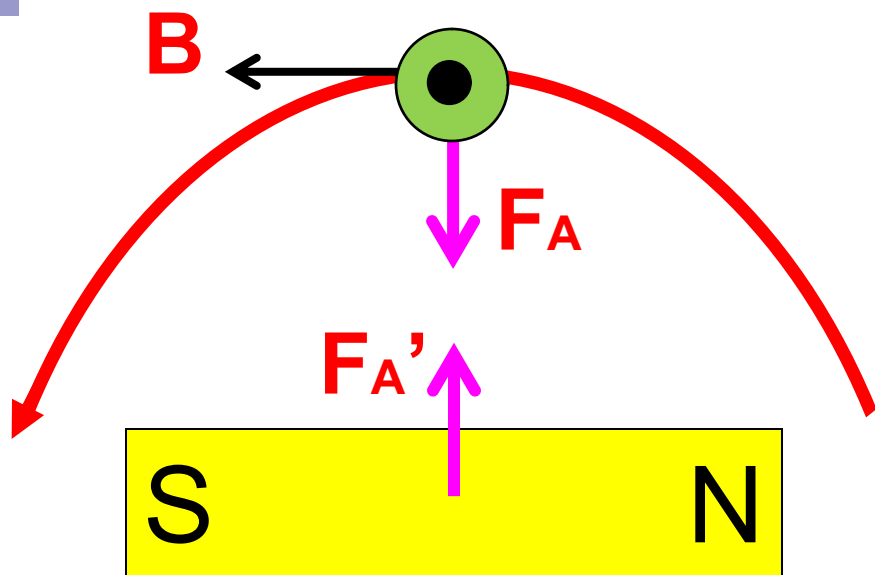
磁感线方向不变，平面翻转 $180^\circ$ ，磁通量变了吗？翻转 $360^\circ$ 呢？



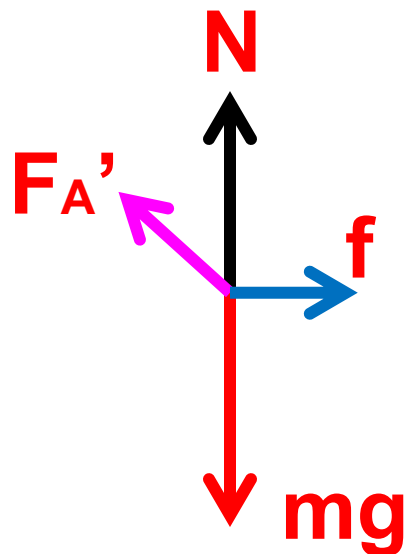
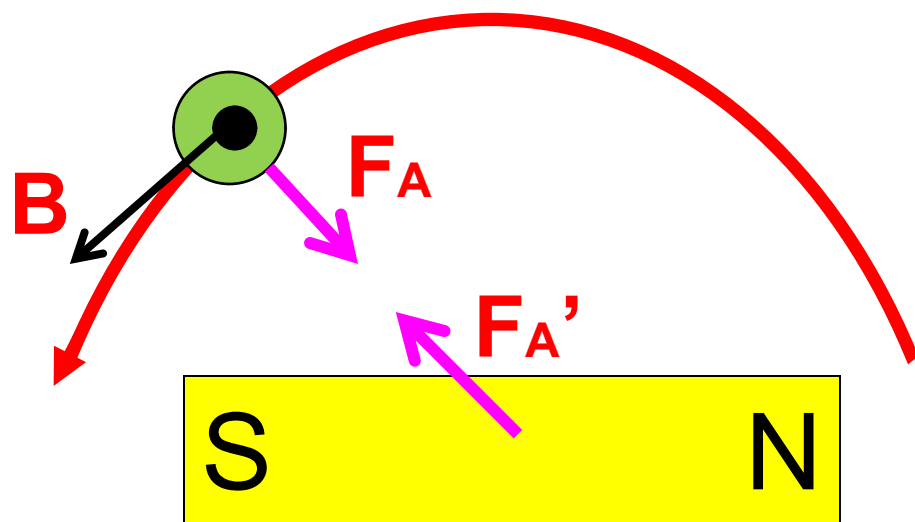
从上往下看，导体棒逆时针转动。



导体棒逆时针转动的同时也在下降。

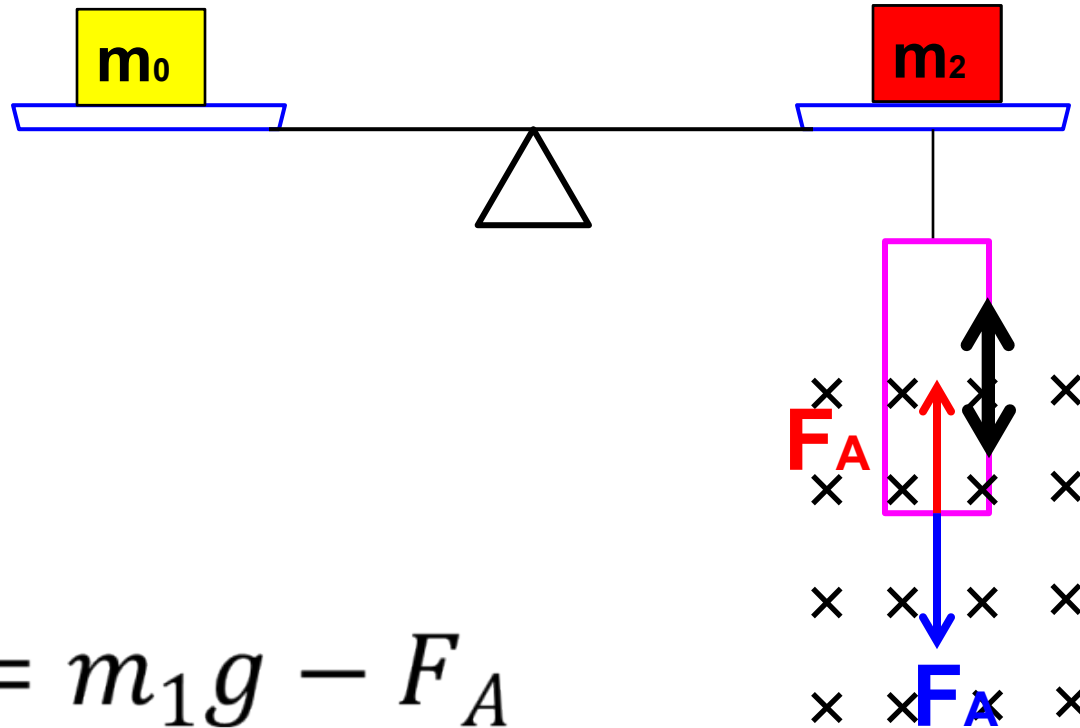


此时  $N < mg$



此时  $N < mg$ ,  
且存在向右  
的静摩擦力  $f$

## 安培秤

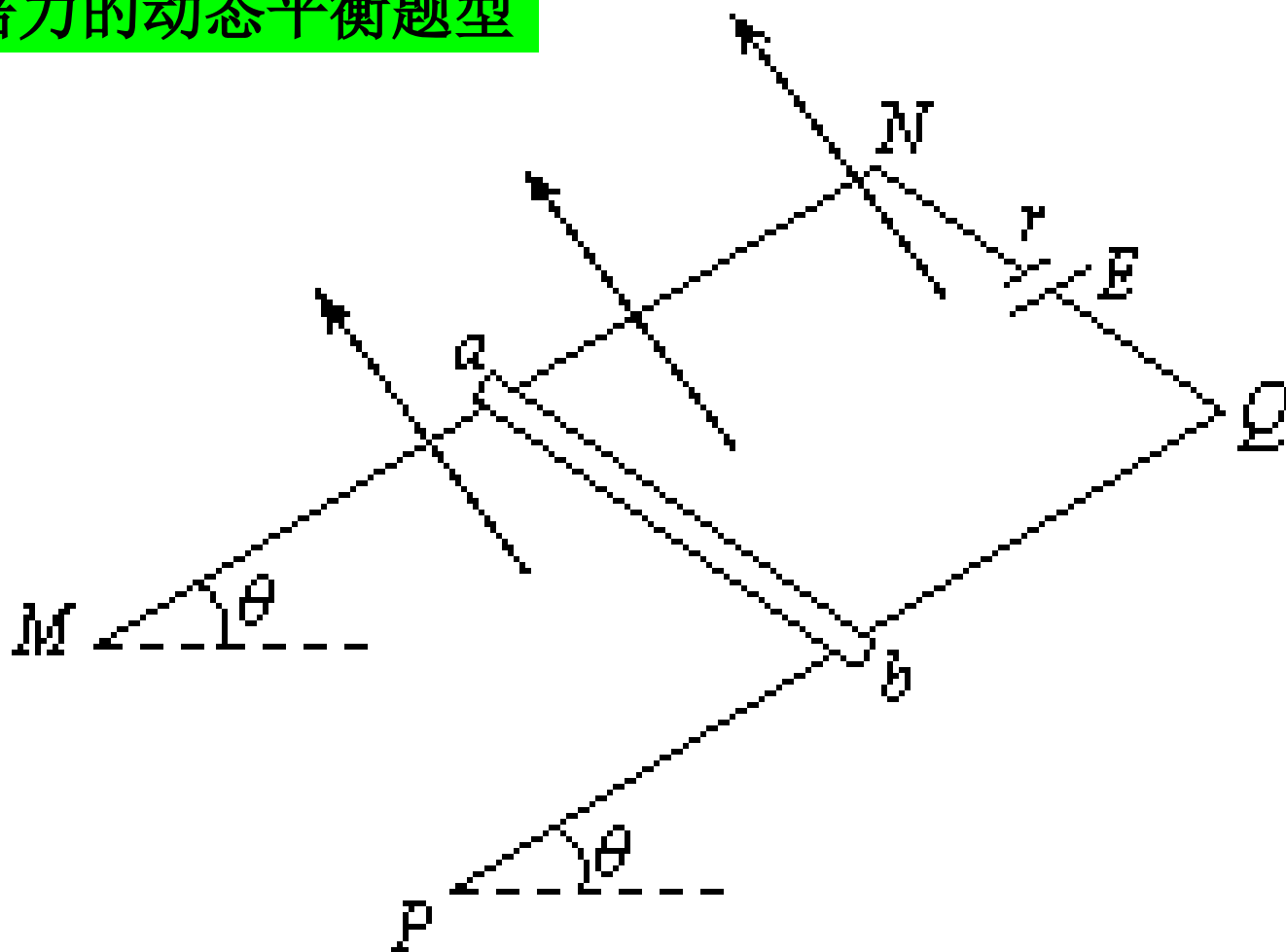


$$m_0 g = m_1 g - F_A$$

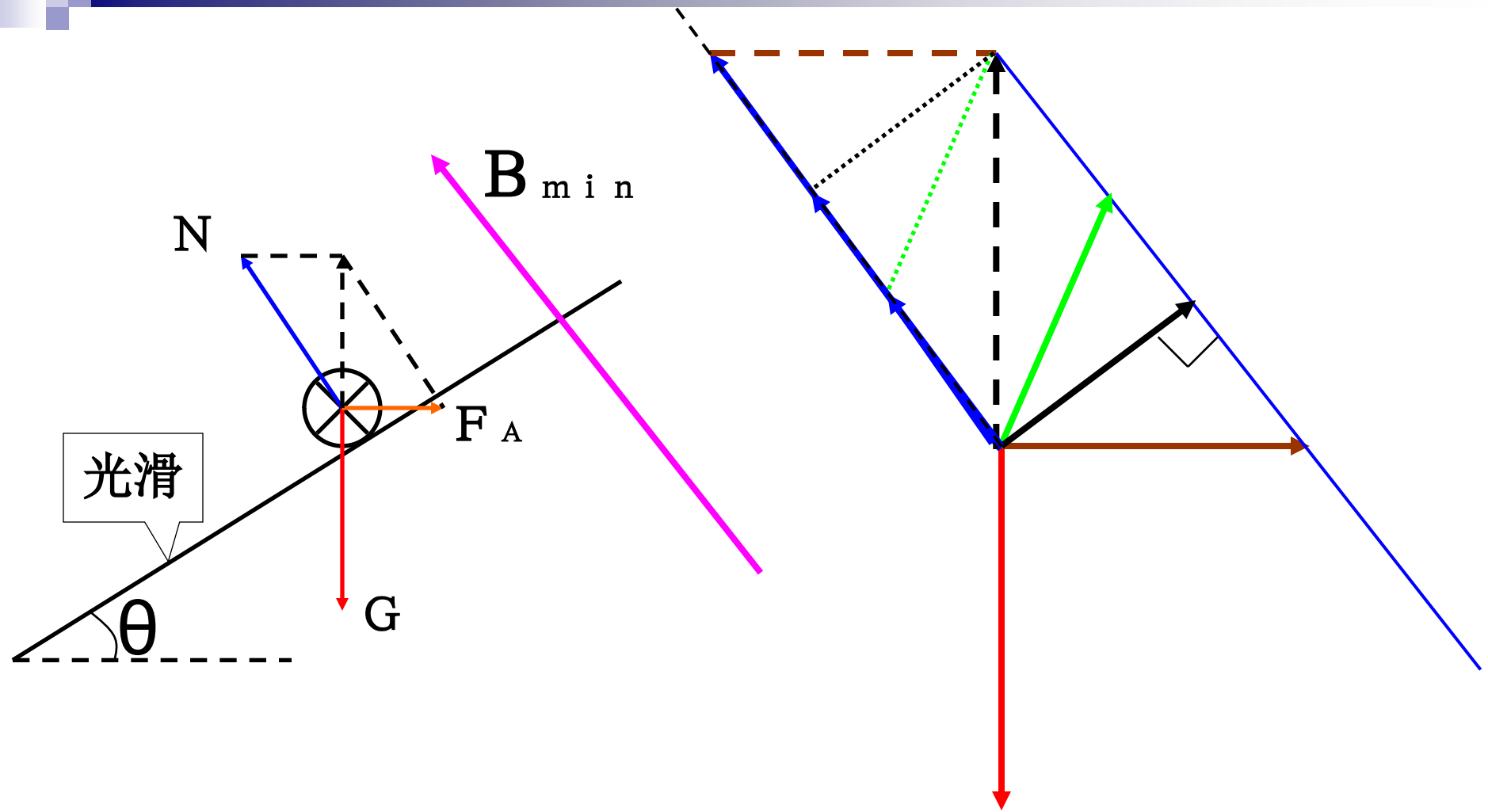
$$m_0 g = m_2 g + F_A$$

已知 $m_0 m_1 m_2$ , 可求 $F_A$

## 关于安培力的动态平衡题型

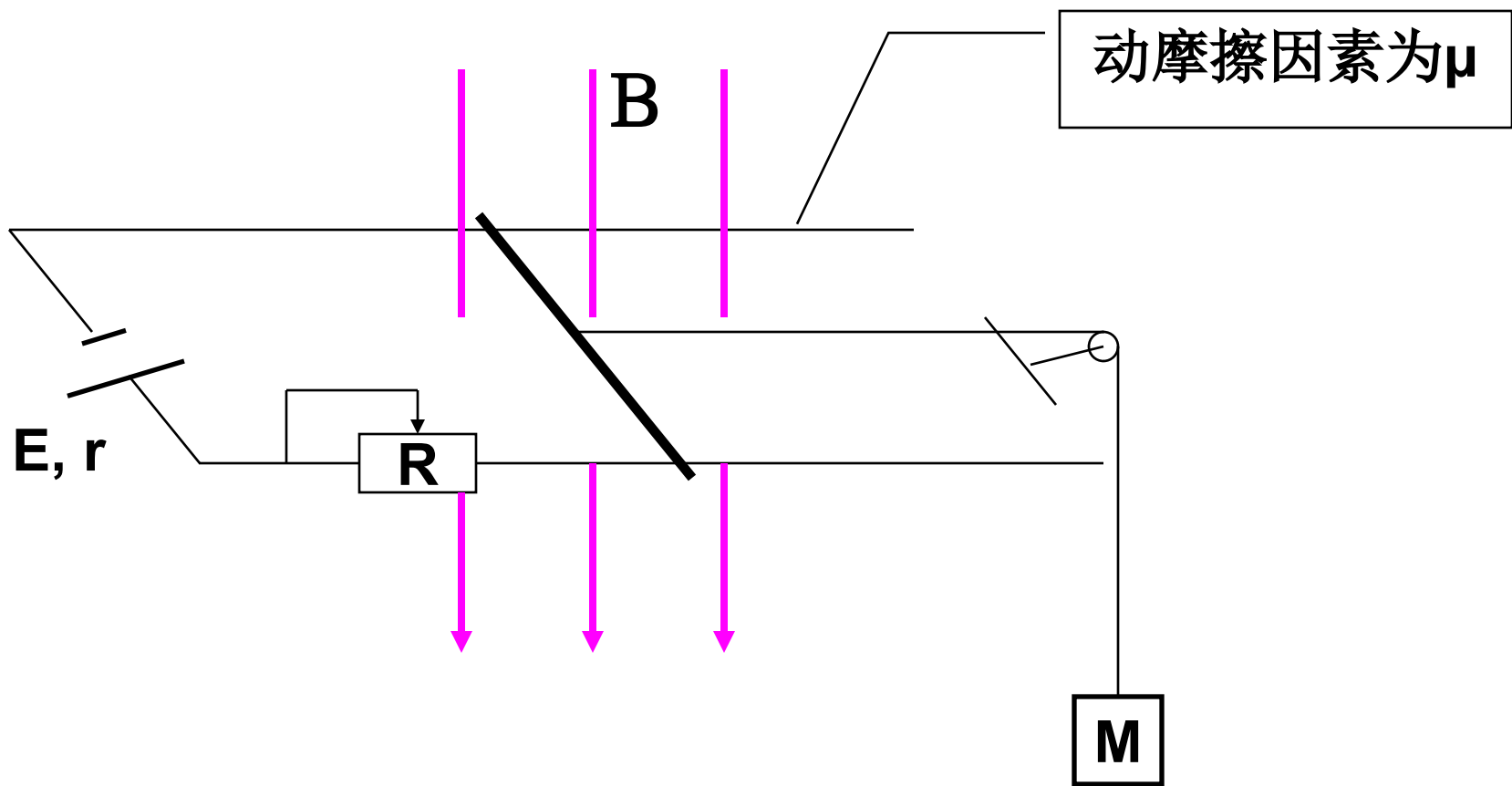


导轨光滑，问磁场的方向如何时，维持导体棒平衡所需的磁感应强度**B**最小？



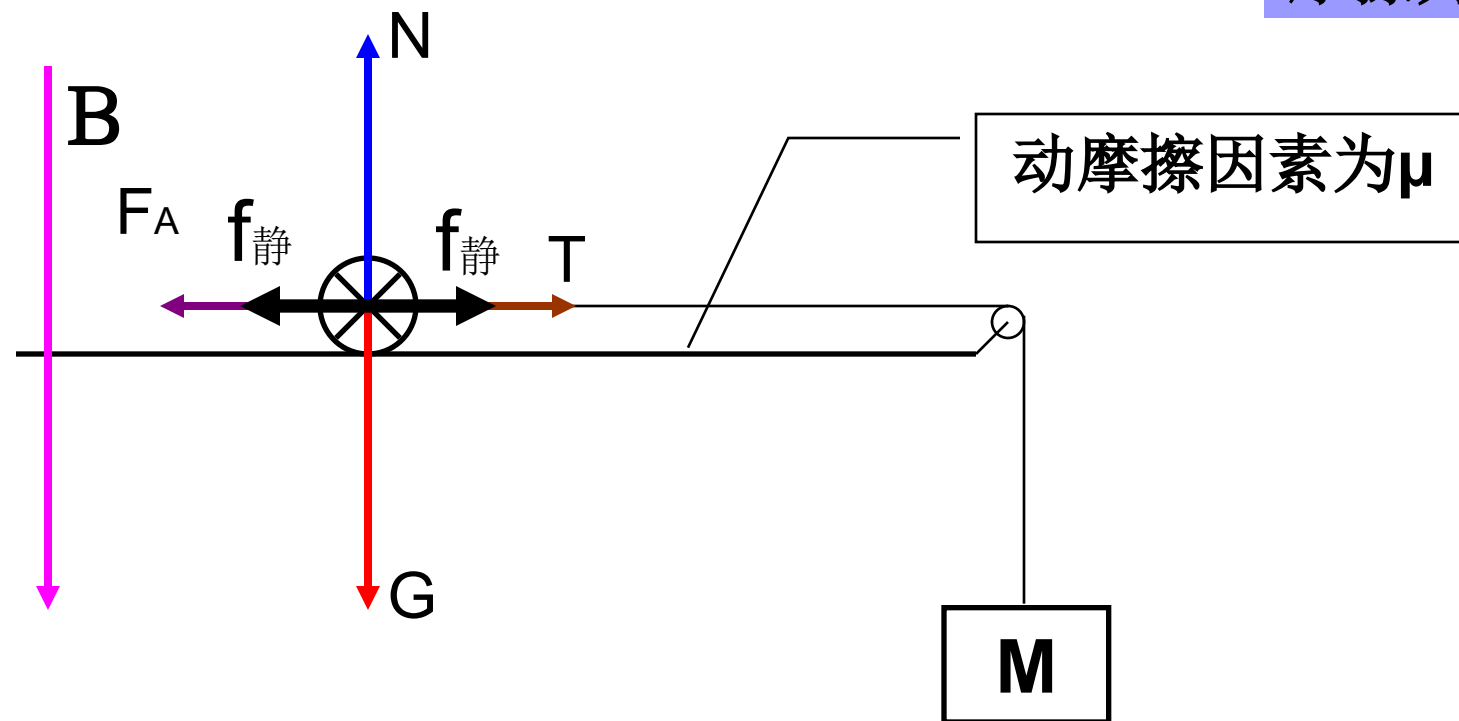
当 $F_A$ 沿斜面向上时，维持导体棒平衡所需的安培力 $F_A$ 最短，即是最小的 $F_A$ ，此时有最小的磁感应强度  $B_{min}$ ，方向垂直斜面向上。

## 关于安培力的临界条件题型



连入电路的电阻  $R$  太小会怎样？太大会怎样？什么时候导体棒不会受到静摩擦力？

摩擦力方向向哪里？



$$T = F_A \downarrow + f_{\text{静}} \uparrow$$

$$F_A \uparrow = T + f_{\text{静}} \uparrow$$

$$T = F_{A\min} + f_m$$

$$F_{A\max} = T + f_m$$

以上内容仅为本文档的试下载部分，为可阅读页数的一半内容。如要下载或阅读全文，请访问：<https://d.book118.com/516022042013010211>