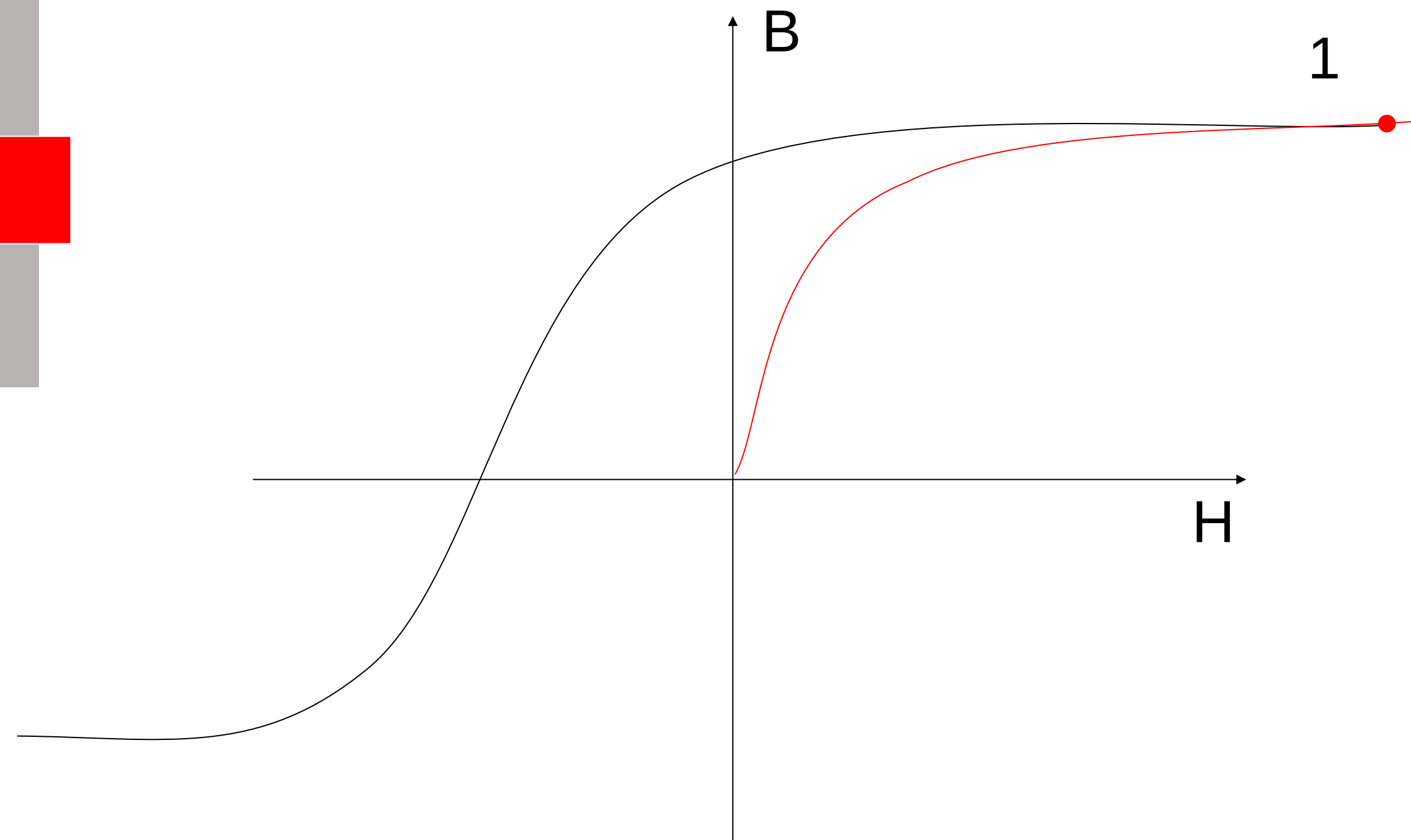
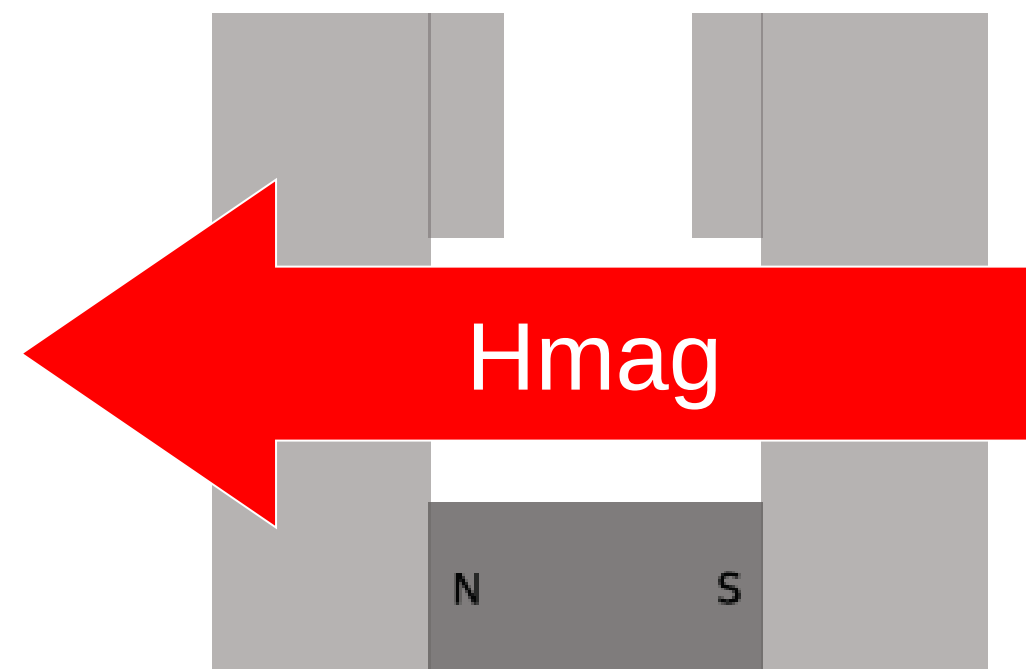


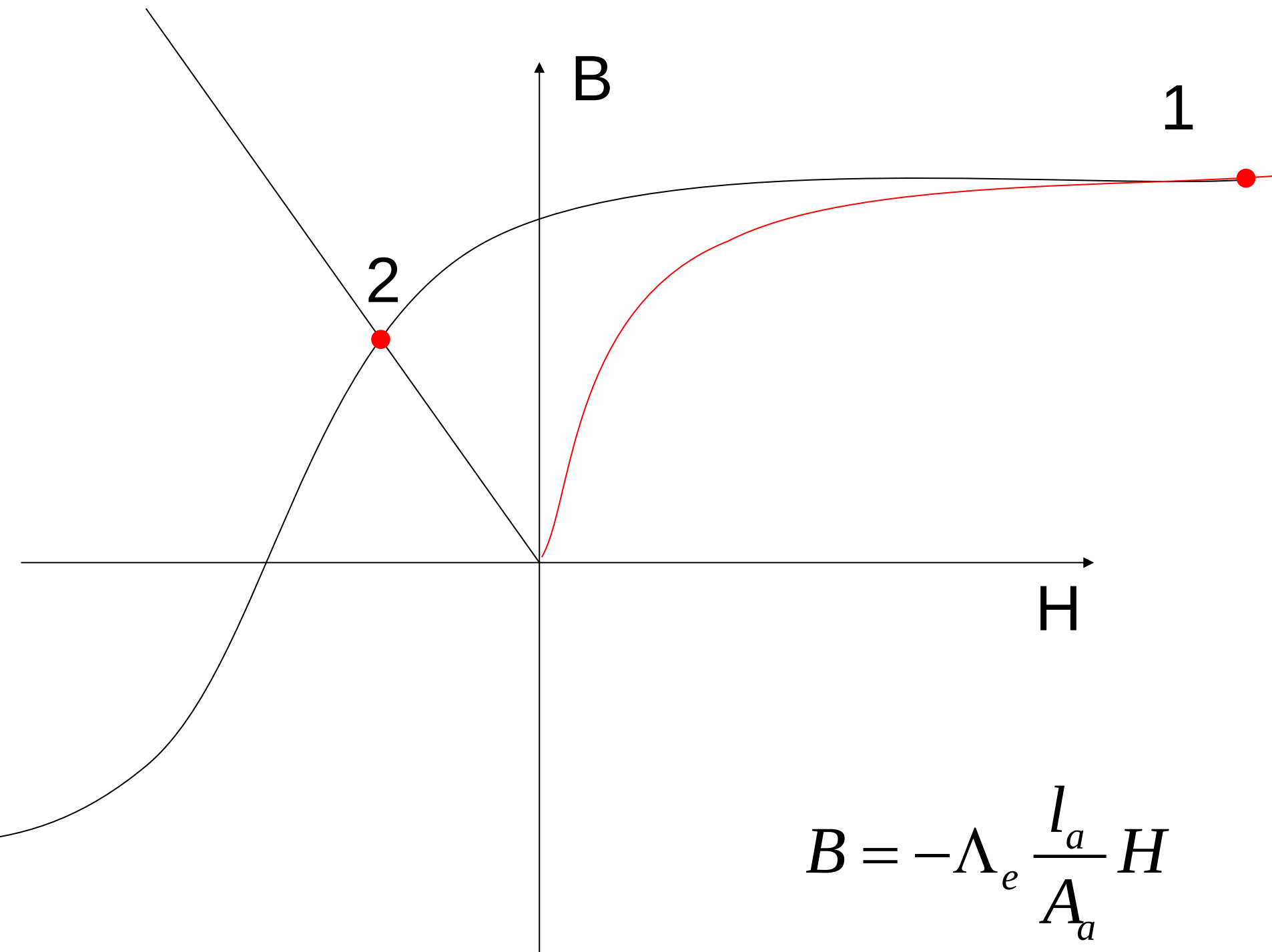
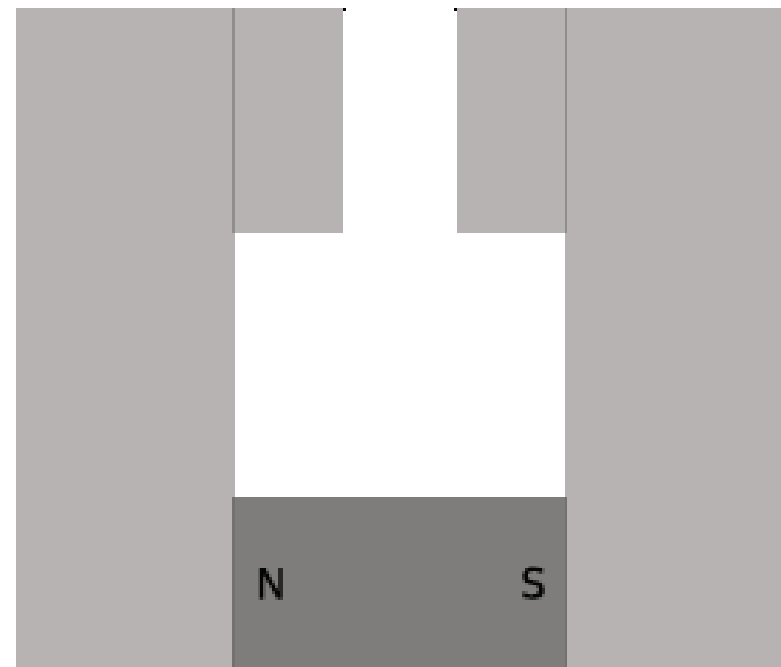
**EPFL**

# **Aimants: résumé**

**Actionneurs et systèmes électromagnétiques**



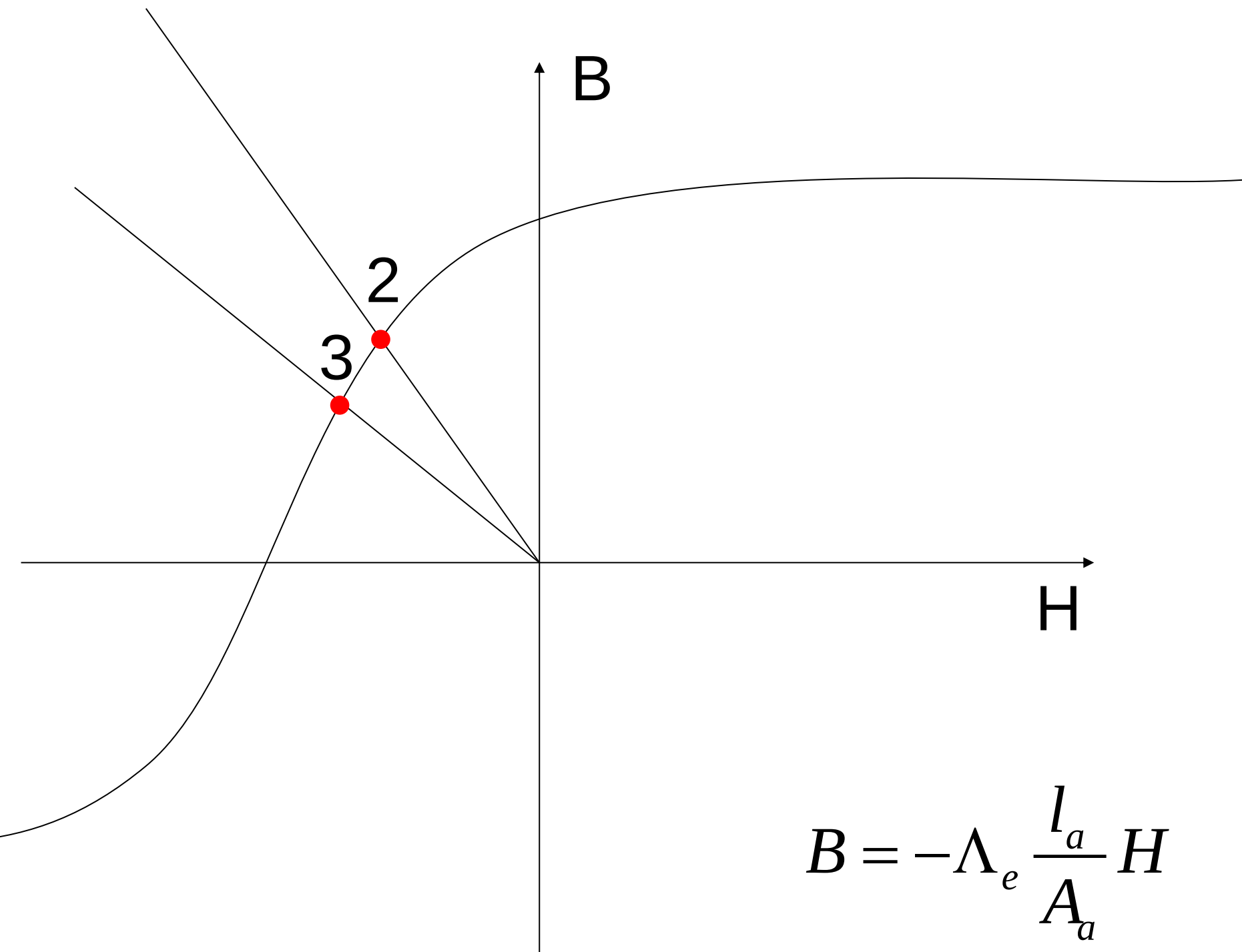
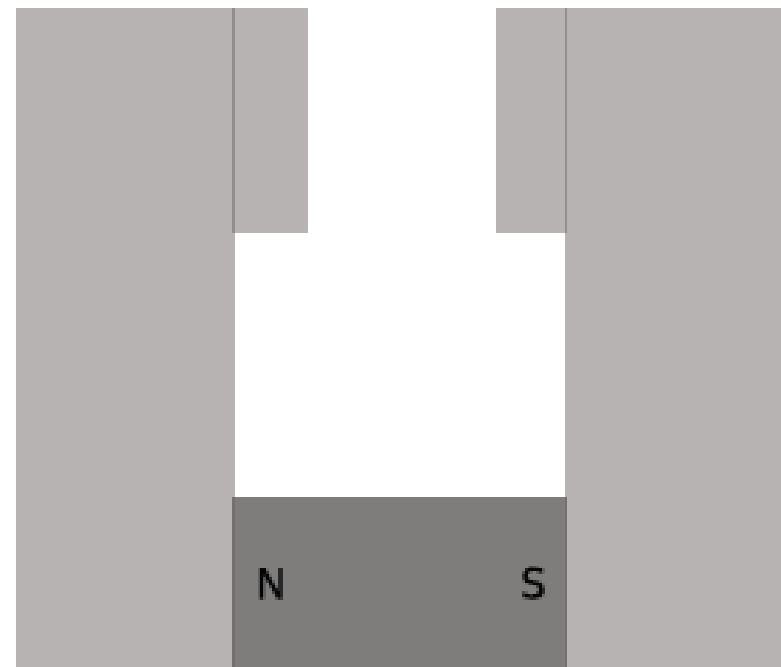
- 1) **Magnétisation**
- 2) Système au repos
- 3) Ouverture entrefer
- 4) Fermeture entrefer
- 5) Champ externe



- 1) Magnétisation
- 2) **Système au repos**
- 3) Ouverture entrefer
- 4) Fermeture entrefer
- 5) Champ externe

$$B = -\Lambda_e \frac{l_a}{A_a} H$$

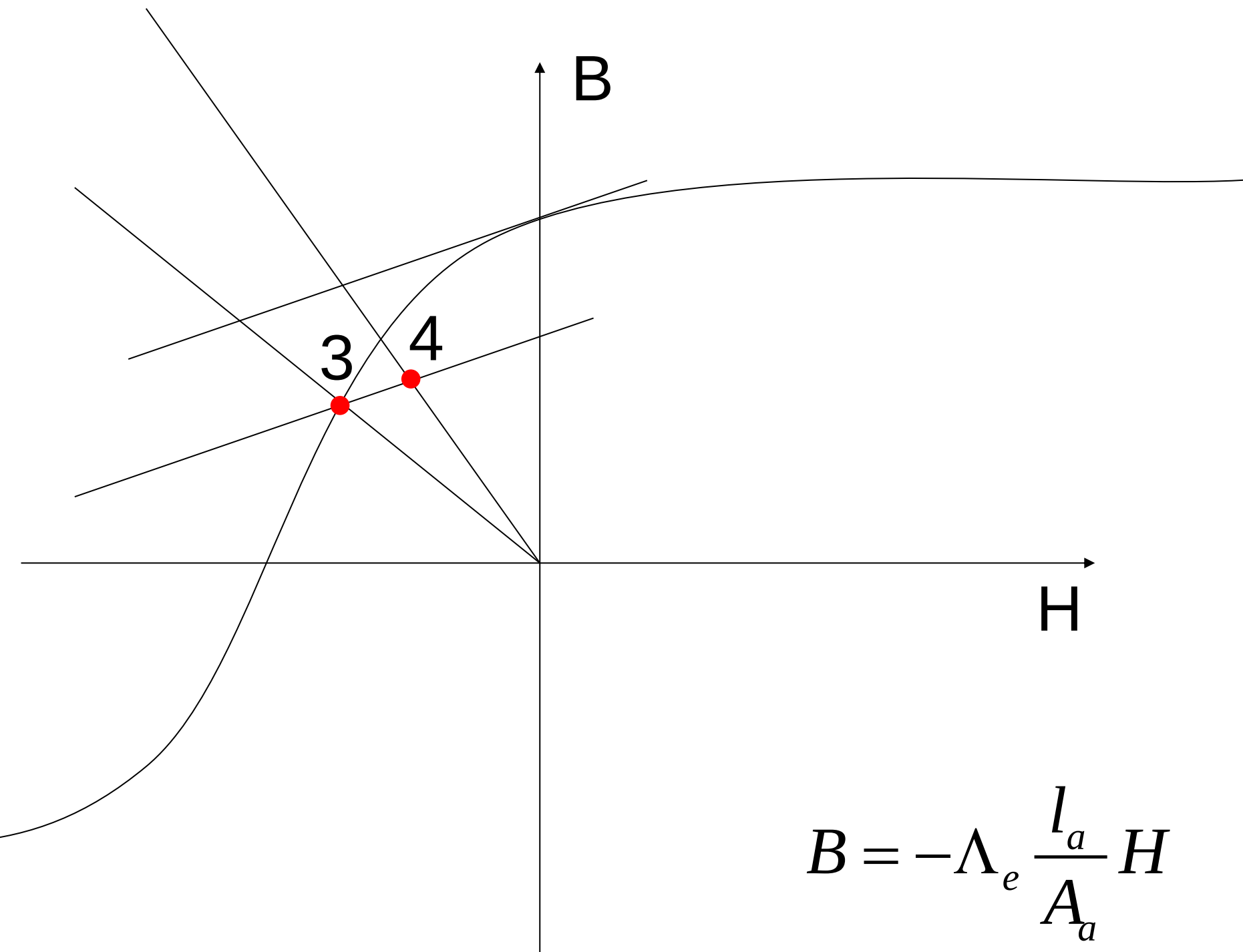
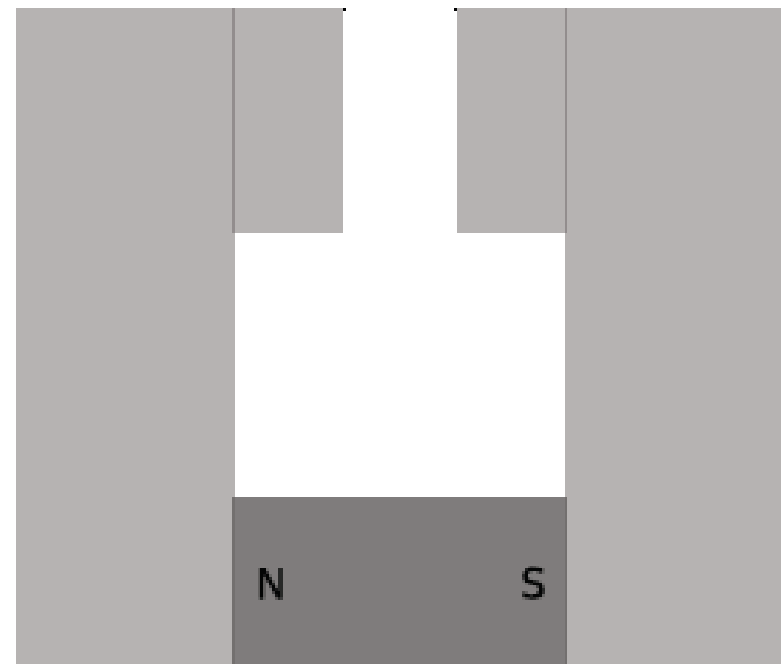
$$B = B_0 + \mu_d H$$



- 1) Magnétisation
- 2) Système au repos
- 3) **Ouverture entrefer**
- 4) Fermeture entrefer
- 5) Champ externe

$$B = -\Lambda_e \frac{l_a}{A_a} H$$

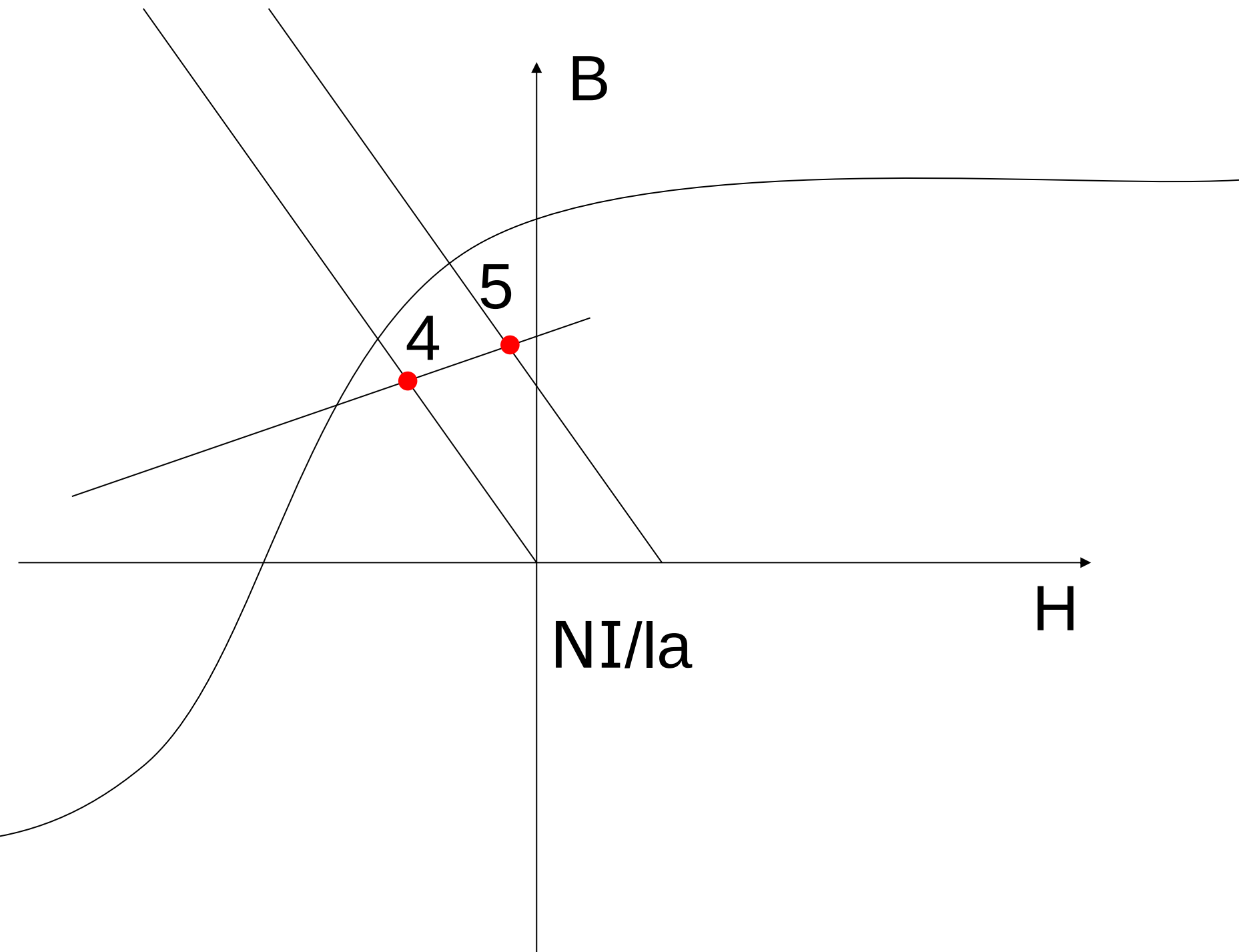
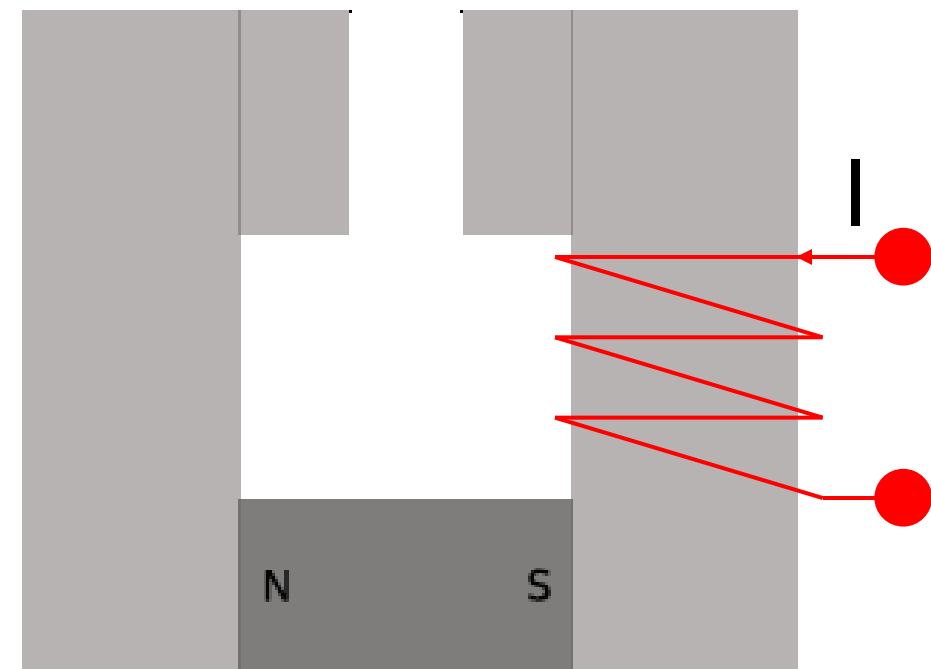
$$B = B_0 + \mu_d H$$



- 1) Magnétisation
- 2) Système au repos
- 3) Ouverture entrefer
- 4) **Fermeture entrefer**
- 5) Champ externe

$$B = -\Lambda_e \frac{l_a}{A_a} H$$

$$B = B_0 + \mu_d H$$



- 1) Magnétisation
- 2) Système au repos
- 3) Ouverture entrefer
- 4) Fermeture entrefer
- 5) **Champ externe**

Droite de charge

$$B = -\Lambda_e \frac{l_a}{A_a} H$$

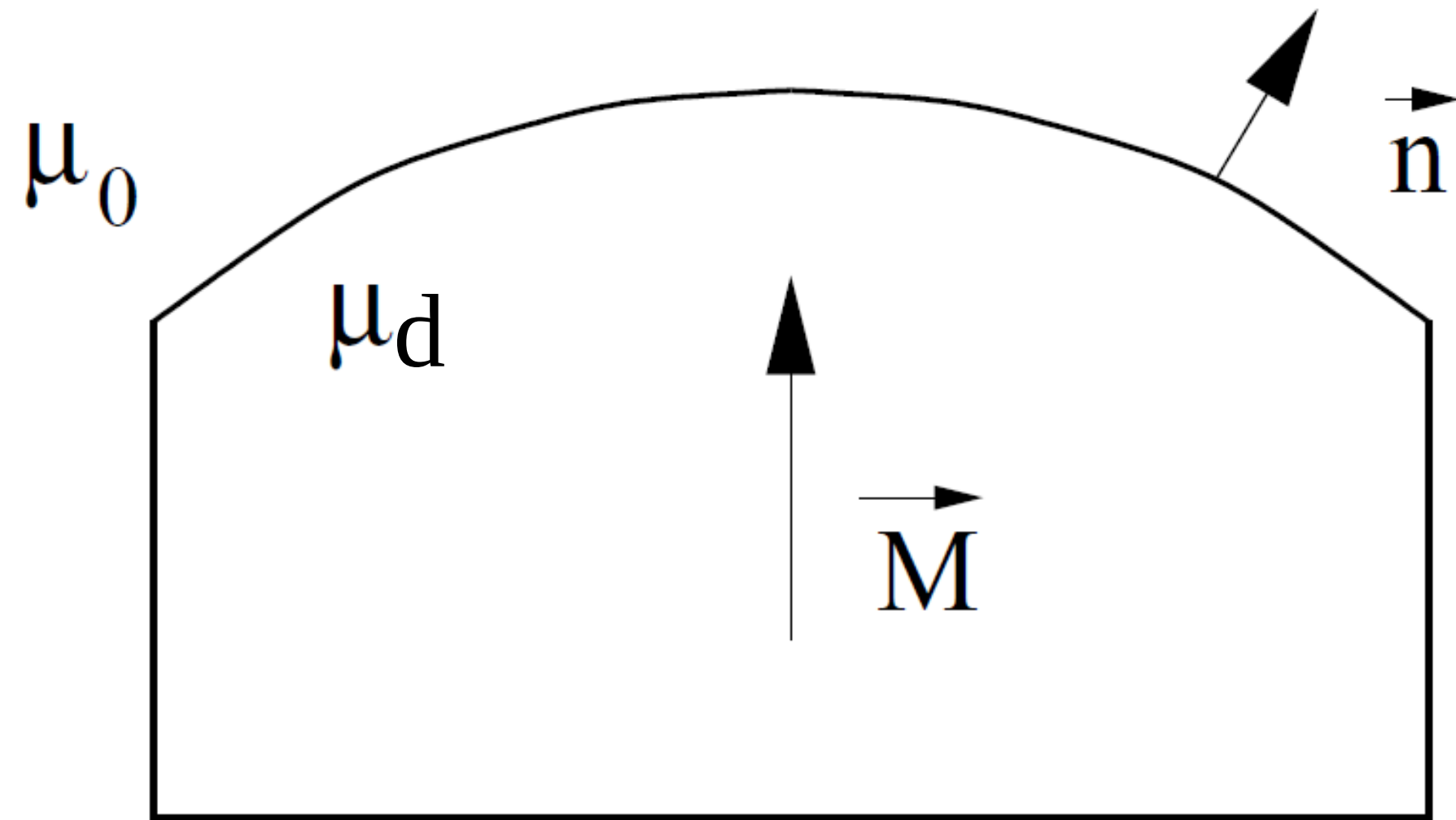
Droite de retour

$$B = B_0 + \mu_d H$$

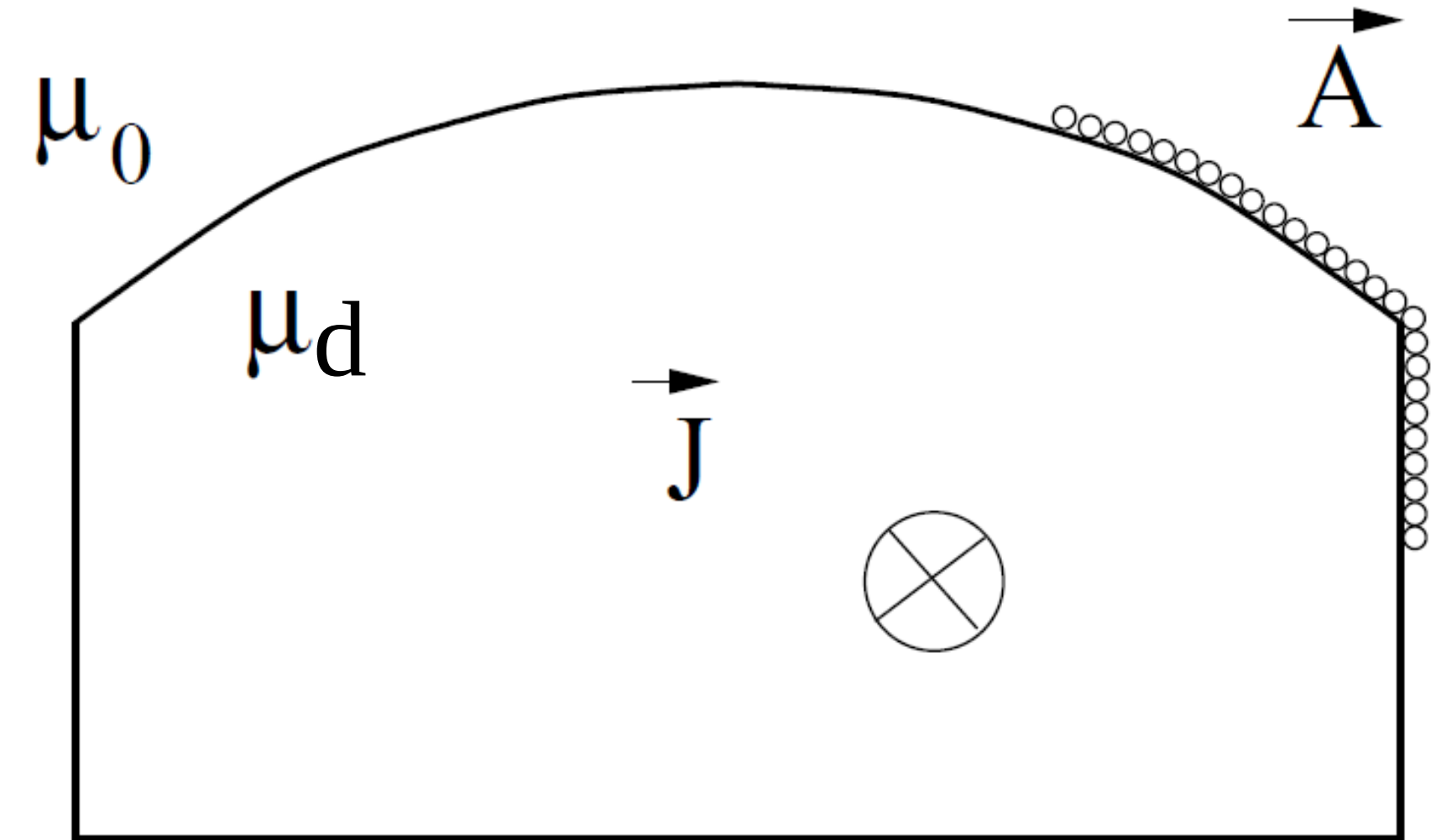
Point de fonctionnement

$$B = B_0 \frac{\Lambda_e}{\Lambda_e + \mu_d A_a / l_a}$$

$$H = -H_0 \frac{\mu_d A_a / l_a}{\Lambda_e + \mu_d A_a / l_a}$$



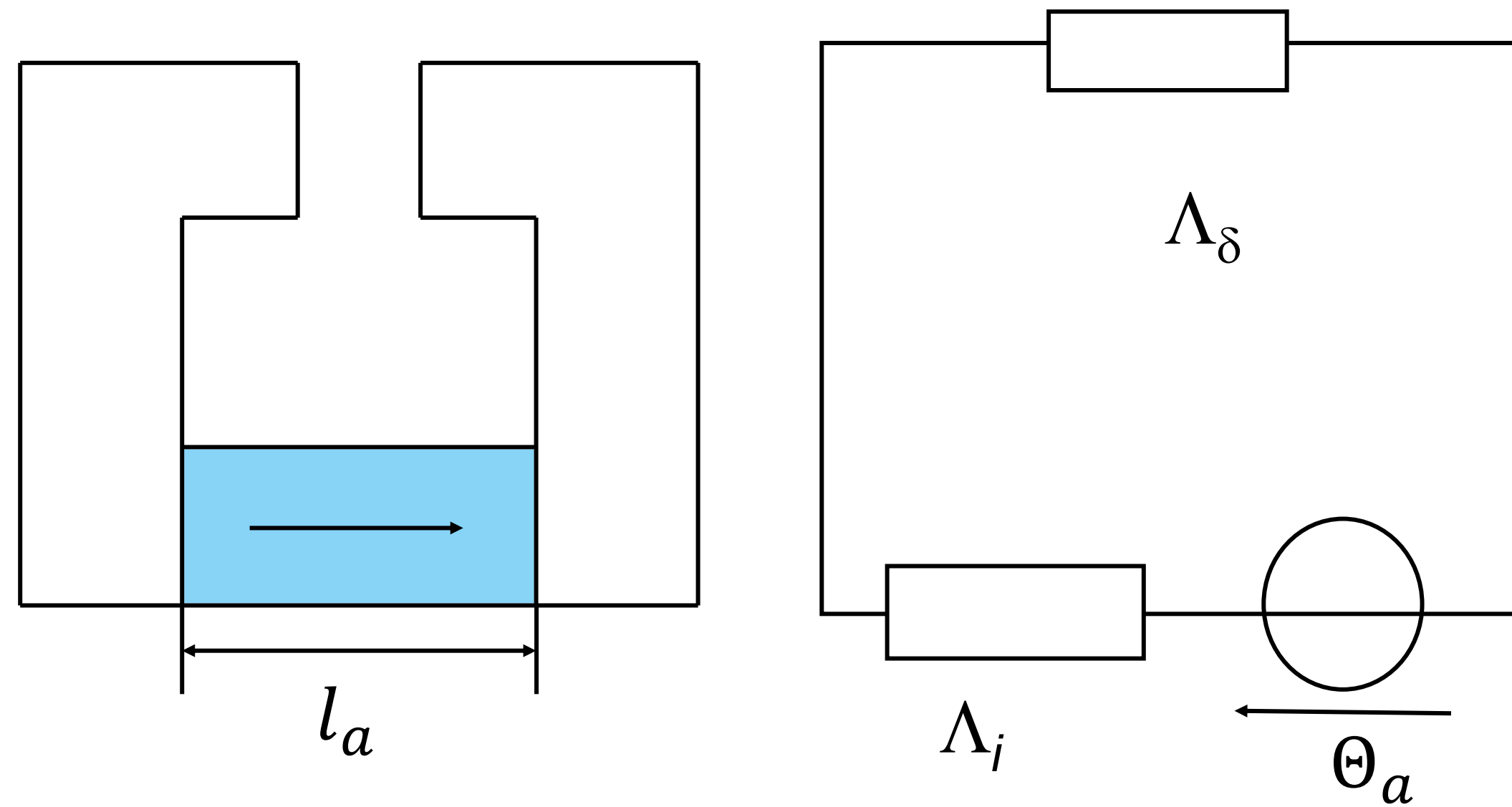
$$M = H_0 = \frac{B_0}{\mu_d}$$



$$\vec{A} = -\vec{n} \times \vec{M}$$

$$\vec{J} = \overrightarrow{rot} \vec{M}$$

# Schéma équivalent



- Courants équivalents

- Source idéale:

$$\Theta_a = H_0 l_a$$

- Perméance en série:

$$\Lambda_i = \frac{\mu_d A_a}{l_a}$$