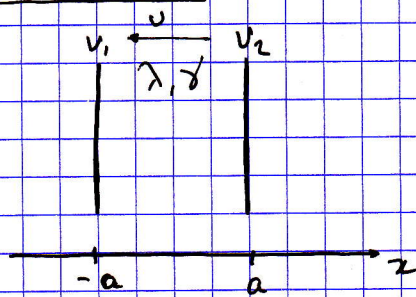


OPTI 48. Condensation (Navale - 41 - 2016 - Guillermain.) 30' sans prep.



$$1. \vec{E} = \frac{U}{2a} \vec{e}_x$$

2. Eq. de la chaleur en régime stationnaire

$$0 = \lambda \frac{d^2 T}{dx^2} + p \quad \text{où} \quad p = \sqrt{\vec{E}} = \delta \vec{E}^2$$

↑
loi d'Ohm

↑
diffusion à 1D.

$$p = \frac{\delta U^2}{4a^2}$$

$$T'' = - \frac{\delta U^2}{4\lambda a^2} \Rightarrow T(x) = - \frac{\delta U^2}{8\lambda a^2} x^2 + Ax + B$$

C.L. $T(a) = T_0 \rightarrow +Ca^2 + Aa + B = T_0 \quad (1)$

$T(-a) = T_0 \rightarrow \begin{cases} Ca^2 - Aa + B = T_0 \quad (2) \end{cases}$

$(1) - (2) \rightarrow 2Aa = 0 \Rightarrow A = 0$

$(1) + (2) \rightarrow 2Ca^2 + 2B = 2T_0 \Rightarrow B = T_0 - Ca^2$

d'où $T(x) = C(x^2 - a^2) + T_0.$

