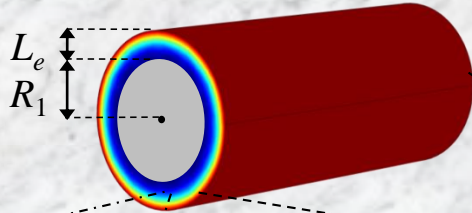


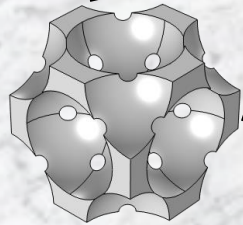
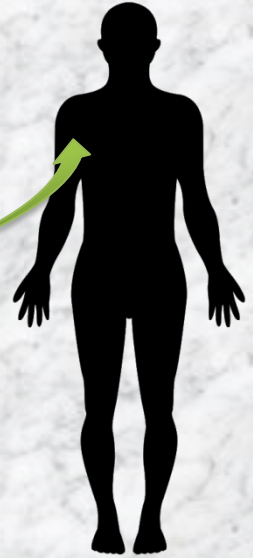
# Optimization of porous micro-electrode dimensions

*Concentration field*



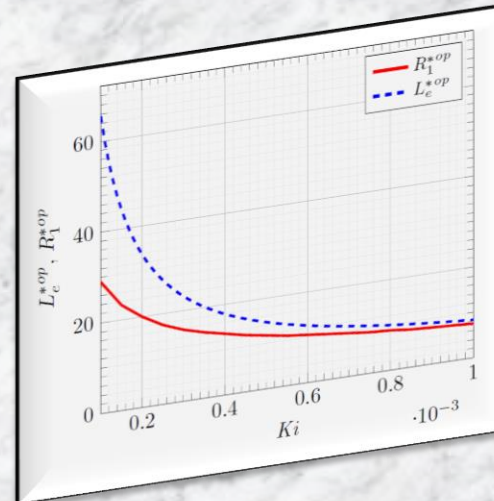
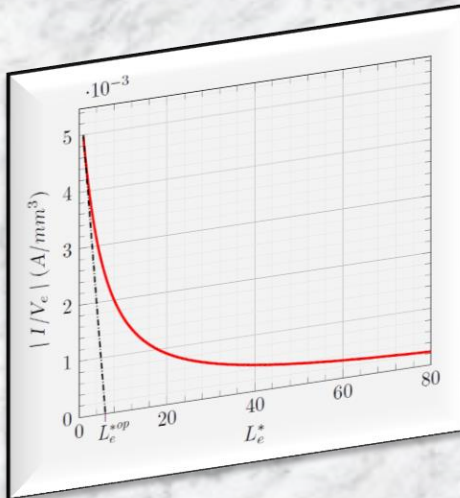
*Porous micro-electrode*

*Implantable devices*



*Microstructure*

$$\frac{I}{V_e} = -\frac{2nk_0Fa_e\alpha AC_A^0}{\varphi(R_2^{*2} - R_1^{*2})} \left( A_1(R_2^*I_1(\varphi R_2^*) - R_1^*I_1(\varphi R_1^*)) + B_1(R_1^*K_1(\varphi R_1^*) - R_2^*K_1(\varphi R_2^*)) \right)$$



The Cover Feature shows that optimal values of the thickness,  $L_e^{*op}$ , and of the supporting central wire radius,  $R_1^{*op}$ , (see bottom right picture) of a cylindrical porous electrode (see top left pictures) can be determined from the current per unit volume dependence upon the porous layer thickness (see bottom left picture). The procedure is of particular interest as it provides a predictive tool for the optimal design of porous electrodes.