$$\frac{RU^{1/3}}{\sqrt{X_1^2 + X_2^2 + X_3^2}} (X_1, X_2, X_3)$$

$$R_j$$

$$R_{j_{new}}$$

 ϵ

$$\Delta t$$

$$N\Delta t = L_D$$

$$\Delta t = L_D/N$$

$$\epsilon = N/L_D$$

$$\tau_D$$

$$L_D$$

$$k_{ET}^{tot} = \sum_{j}^{\#dopantes} k_{ET_{j}} = \tau_{D} \sum_{j} \left(\frac{R_{0}}{R_{j}}\right)^{6}$$

$$P_{ET} = 1 - e^{-k_{ET}^{tot} \Delta t}$$

$$P = 1 - e^{-\frac{\Delta t}{\tau_{D}}}$$

$$N = L_{D}/\epsilon$$

$$\Delta t = \frac{\epsilon}{L_{D}} \tau_{D}$$

$$Q = M_{ET}/M_{TOT}$$

 M_{ET}

 M_{TOT}