3.2 Principle of the algorithm

- We want to find the global minimum of a fitness function $E(x)$, $x \in S$, usually called energy in this chapter.
- One has to specify the search space and the neighborhood (movements or transformations)
- Choose a random initial condition (configuration)
- At each iteration, one neighbor is chosen randomly in the neighborhood. It becomes the new solution with a give probability p

$$p = \min\left(1, e^{-\frac{\Delta E}{T}}\right)$$

T stands for temperature and it is a guiding parameter.

ΔE is the variation of energy (or fitness) between the candidate solution and the current one:

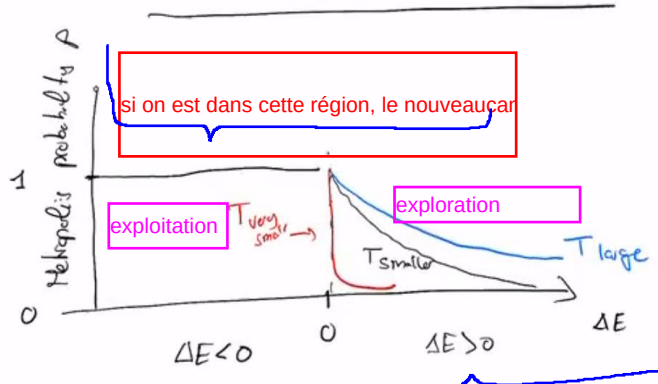
$$\Delta E = E_{new} - E_{old}$$

Metropolis rule: $\text{Random}(0, 1) < e^{-\Delta E/T}$ ⇒ acceptation of the new candidate

otherwise reject it. (with prob $1-p$) → generate a new candidate.

Choice of the temperature

$$p = \min\left(1, e^{-\Delta E/T}\right)$$



ici le candidat est moins bien que la solution est actuelle n

t

ca dépend tres for de t

on va changer t à chaque itération