$$-\frac{\hbar^2}{2ma^2} \underbrace{}_{t} \sum_{j=1}^{2d} \psi_j - \psi_{ix} + V_{ix}\psi_{ix} = E\psi_{ix}$$
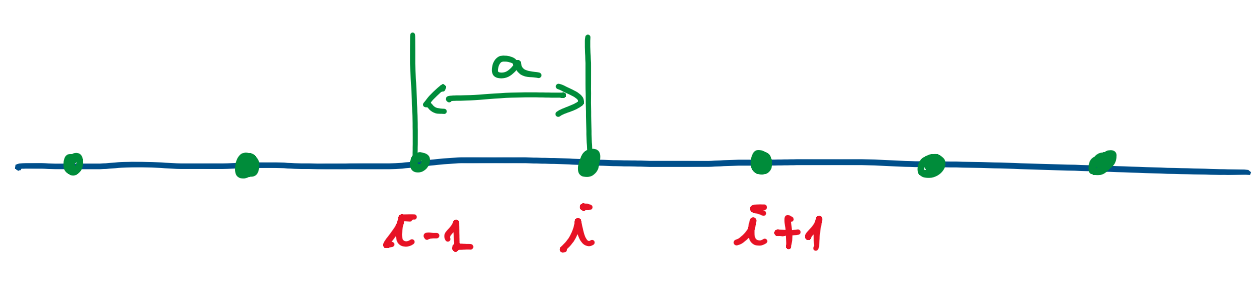
$d = 1, 2, 3$

$$t = -\frac{\hbar^2}{2ma^2}$$

<u>1D</u>

i-esimo :

$$t\psi_{i-1} + (V_i - 2t)\psi_i + t\psi_{i+1} = E\psi_i$$

$$t\left[\psi_{i-1} + V_i - 2\psi_i + \psi_{i+1}\right] = E\psi_i$$

$$\frac{\partial\psi}{\partial x}\bigg|_i = \frac{\psi_{i+1} - \psi_i}{a} = \frac{\psi_i - \psi_{i-1}}{a} = \frac{\psi_{i+1} - \psi_{i-1}}{2a}$$

$$-\frac{\hbar^2}{2m} \underbrace{\left[\frac{\psi_{i-1} - 2\psi_i + \psi_{i+1}}{a^2}\right]}_{\frac{\delta^2\psi_i}{\partial x^2}\big|_i} \longrightarrow \nabla^2\psi \qquad \frac{\delta^2\psi}{\delta x^2}$$

$$H\underbrace{\psi}_{} = E\psi$$
$$[m\times m][m\times 1] = [m\times 1]$$

PYTHON   LEZIONE   18/10/2018

$\text{type}(a) \Rightarrow \text{list}$ \qquad $a = [0, 1, 2, 3, 4, 5, 6, 7, 8, 9]$

$a = \text{array}(a)$

$a = \text{array}(a, dtype = \text{"int"})$

$a = \text{array}(a, dtype = \text{"float"})$

$a = \text{array}(a, dtype = \text{"complex"})$

$ind = \text{nonzero}(a > 5)$

```
ind = []
for i in range(0, len(a)):
    if (a > 5):
        ind.append(i)

ind = array(ind, dtype = "int")
```