2 :Atome d'Hydrogène

Atome d'H dans l'état $1S$

$$W(t) = -\alpha q E \hat{z} \sum_{n=0}^{N} \delta(t - n\tau) e^{t/z_{0?}}$$

$$\lambda = \langle n, l, m | \, hatz \, | 1, 0, 0 \rangle = \int \mathrm{d}^3 r R_{m,l}(r) Y_l^m(\theta, \varphi) r \cos\theta \varphi_{1S}(r)$$

$$\lambda = \int r^3 \mathrm{d}r R_{n,l}(r) R_{1,0}(r) \underbrace{\int \mathrm{d}\Omega Y_1^0(\theta, \varphi) Y_l^m(\theta\varphi)}_{\delta_{m0}\delta_{l1}} \sqrt{\frac{3}{4\pi}} frac1\sqrt{4\pi}$$

<u>Conclusions</u> : Transision possibles : $1S \to np_z$

1er Transition

$$1S \to 2p_z$$

On va se placer dans la limite des temps longs

$$P_{1s \to 2p_z(t \to \infty} = \frac{1}{\hbar^2} (q\alpha E)^2 \left| \int_0^\infty \sum_{n=0}^{\infty} \delta(t' - n\tau) e^{t' \left(i\omega_{1S}, 2p_z^{-1/\tau_0} \mathrm{d}t' \right)} \right|^2$$