- $\vec{A}(\vec{r},t) = N_k \vec{\varepsilon}_k e^{i(\vec{k}\cdot\vec{r}-\omega t)}$

$$k = \frac{\omega}{c} \quad e \quad \vec{\varepsilon}\cdot\vec{k} = 0$$

Dall'eq. 3a si ha:

$$\vec{H} = \vec{\nabla}\times\vec{A} = i N_k \left(\vec{k}\times\vec{\varepsilon}_k\right) e^{i(\vec{k}\cdot\vec{r}-\omega t)} \qquad 37$$

dalla 3b) si ha:

$$\vec{E} = -\vec{\nabla}\varphi - \frac{1}{c}\frac{\partial\vec{A}}{\partial t} = -\frac{1}{c}\left(N_k \vec{\varepsilon}_k (-i\omega) e^{i(\vec{k}\cdot\vec{r}-\omega t)}\right)$$

$$= i\frac{\omega}{c} N_k \vec{\varepsilon}_k e^{i(\vec{k}\cdot\vec{r}-\omega t)}$$

$$= i|\vec{k}| N_k \vec{\varepsilon}_k e^{i(\vec{k}\cdot\vec{r}-\omega t)} \qquad 38$$

$$\vec{\nabla}\times\vec{A} = \left(\frac{\partial A_z}{\partial y} - \frac{\partial A_y}{\partial z}\right)\hat{i} - \left(\frac{\partial A_z}{\partial x} - \frac{\partial A_x}{\partial z}\right)\hat{j} + \left(\frac{\partial A_y}{\partial x} - \frac{\partial A_x}{\partial y}\right)\hat{k}$$

$$\frac{\partial A_i}{\partial x_j} = N_k \varepsilon_i (i k_j) e^{i(\vec{k}\cdot\vec{r}-\omega t)}$$

$$= N i \left[\left(k_y \varepsilon_z - k_z \varepsilon_y\right)\hat{i} - \left(k_x \varepsilon_z - k_z A_x\right)\hat{j} + \left(k_x A_y - k_y A_x\right)\hat{k}\right] e^{i(\vec{k}\cdot\vec{r}-\omega t)}$$

$$= N i \left(\vec{k}\times\vec{\varepsilon}\right) e^{i(\vec{k}\cdot\vec{r}-\omega t)} \qquad 39)$$