```
Ms = {0, 0, Msz};
B0 = {0, 0, B0z};
b = {bx, by, 0};
M = {Mx, My, Mz};
H = {Hx, Hy, 0};

B0z = (-ω L)/γ;

b = μ0 * H;

(-I * ω)/γ * M == Cross[Ms, b] + Cross[M, B0]
```

$$\left\{-\frac{\mathrm{I}\,\mathrm{Mx}\,\omega}{\gamma}, -\frac{\mathrm{I}\,\mathrm{My}\,\omega}{\gamma}, -\frac{\mathrm{I}\,\mathrm{Mz}\,\omega}{\gamma}\right\} == \left\{-\mathrm{Hy}\,\mathrm{Msz}\,\mu 0 - \frac{\mathrm{My}\,\omega \mathrm{L}}{\gamma}, \mathrm{Hx}\,\mathrm{Msz}\,\mu 0 + \frac{\mathrm{Mx}\,\omega \mathrm{L}}{\gamma}, 0\right\}$$

```
Solve[%, M]
```

$$\left\{\left\{\mathrm{Mz} \to 0, \mathrm{Mx} \to -\frac{-\mathrm{I}\,\mathrm{Hy}\,\mathrm{Msz}\,\gamma\,\mu 0\,\omega + \mathrm{Hx}\,\mathrm{Msz}\,\gamma\,\mu 0\,\omega \mathrm{L}}{-\omega^2 + \omega \mathrm{L}^2}, \mathrm{My} \to \frac{\mathrm{I}\,\gamma\,(\mathrm{Hx}\,\mathrm{Msz}\,\mu 0\,\omega - \mathrm{I}\,\mathrm{Hy}\,\mathrm{Msz}\,\mu 0\,\omega \mathrm{L})}{\omega^2 - \omega \mathrm{L}^2}\right\}\right\}$$

```
Mx = -(-I Hy Msz γ μ0 ω + Hx Msz γ μ0 ω L)/(-ω^2 + ω L^2);
My = (I γ (Hx Msz μ0 ω - I Hy Msz μ0 ω L))/(ω^2 - ω L^2);
Mz = 0;

μ = μ0 * H + μ0 * M
```

$$\left\{\mathrm{Hx}\,\mu 0 - \frac{\mu 0\,(-\mathrm{I}\,\mathrm{Hy}\,\mathrm{Msz}\,\gamma\,\mu 0\,\omega + \mathrm{Hx}\,\mathrm{Msz}\,\gamma\,\mu 0\,\omega \mathrm{L})}{-\omega^2 + \omega \mathrm{L}^2}, \mathrm{Hy}\,\mu 0 + \frac{\mathrm{I}\,\gamma\,\mu 0\,(\mathrm{Hx}\,\mathrm{Msz}\,\mu 0\,\omega - \mathrm{I}\,\mathrm{Hy}\,\mathrm{Msz}\,\mu 0\,\omega \mathrm{L})}{\omega^2 - \omega \mathrm{L}^2}, 0\right\}$$

```
Collect[μ, {Hx, Hy}]
```

$$\left\{\frac{\mathrm{I}\,\mathrm{Hy}\,\mathrm{Msz}\,\gamma\,\mu 0^2\,\omega}{-\omega^2 + \omega \mathrm{L}^2} + \mathrm{Hx}\left(\mu 0 - \frac{\mathrm{Msz}\,\gamma\,\mu 0^2\,\omega \mathrm{L}}{-\omega^2 + \omega \mathrm{L}^2}\right), \frac{\mathrm{I}\,\mathrm{Hx}\,\mathrm{Msz}\,\gamma\,\mu 0^2\,\omega}{\omega^2 - \omega \mathrm{L}^2} + \mathrm{Hy}\left(\mu 0 + \frac{\mathrm{Msz}\,\gamma\,\mu 0^2\,\omega \mathrm{L}}{\omega^2 - \omega \mathrm{L}^2}\right), 0\right\}$$

```
MatrixForm[{{{μ0 - (Msz γ μ0^2 ωL)/(-ω^2 + ωL^2), (I Msz γ μ0^2 ω)/(-ω^2 + ωL^2), 0}, {(I Msz γ μ0^2 ω)/(ω^2 - ωL^2), μ0 + (Msz γ μ0^2 ωL)/(ω^2 - ωL^2), 0}, {0, 0, 0}}}]
```

$$\begin{pmatrix} \mu 0 - \frac{Msz\,\gamma\,\mu 0^2\,\omega L}{-\omega^2+\omega L^2} & \frac{I\,Msz\,\gamma\,\mu 0^2\,\omega}{-\omega^2+\omega L^2} & 0 \\ \frac{I\,Msz\,\gamma\,\mu 0^2\,\omega}{\omega^2-\omega L^2} & \mu 0 + \frac{Msz\,\gamma\,\mu 0^2\,\omega L}{\omega^2-\omega L^2} & 0 \\ 0 & 0 & 0 \end{pmatrix}$$

**"L'ultima matrice rappresenta il tensore $\mu$ della ferrite senza \nperdite con campo magnetico rotante applicato dall'esterno"**