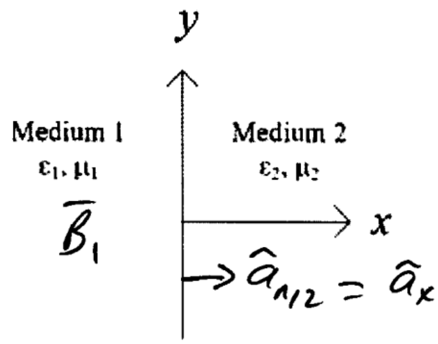
If $\bar{B}_1 = \hat{a}_x\alpha + \hat{a}_y\beta + \hat{a}_z\gamma$ at $x = 0^-$ of the interface between two media shown in the previous problem, find $\bar{H}_2$ at $x = 0^+$.



* Boundary Condition problem. Use (9.31d) $B_{1n} = B_{2n}$ and (9.31b) $H_{1t} - H_{2t} = J_s$ with the assumption that $\bar{J}_s = 0$.

* From the drawing, $\hat{a}_{n_{12}} = \hat{a}_x$ while $\hat{a}_y$ & $\hat{a}_z$ are tangential to the interface

From (9.31d), $\bar{B}_{2n} = \bar{B}_{1n} = \alpha\,\hat{a}_x$

Now, $\bar{B}_{1t} = \beta\,\hat{a}_y + \gamma\,\hat{a}_z = \mu_1 \bar{H}_{1t}$ per (9.30b) $\bar{B} = \mu\bar{H}$

$\hookrightarrow \bar{H}_{1t} = \beta/\mu_1\,\hat{a}_y + \frac{\gamma}{\mu_1}\,\hat{a}_z$

From (9.31b), $\bar{H}_{2t} = \bar{H}_{1t} = \beta/\mu_1\,\hat{a}_y + \frac{\gamma}{\mu_1}\,\hat{a}_z$

Per (9.30b), $\bar{B}_{2n} = \mu_2 \bar{H}_{2n} = \alpha\,\hat{a}_x \Rightarrow \bar{H}_{2n} = \frac{\alpha}{\mu_2}\,\hat{a}_x$

$$\bar{H}_2 = \bar{H}_{2n} + \bar{H}_{2t}$$

$$\underline{\underline{\bar{H}_2 = \frac{\alpha}{\mu_2}\,\hat{a}_x + \frac{\beta}{\mu_1}\,\hat{a}_y + \frac{\gamma}{\mu_1}\,\hat{a}_z}}$$