FCFM
FACULTAD DE CIENCIAS FISICO MATEMATICAS

Tarea N°1

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Ejericio: Mostrar que:a

$$i)\gamma\beta = Sinh\zeta$$
$$ii)\gamma = Cosh\zeta$$
$$iii)A'_0B'_0 - \vec{A'}\cdot\vec{B'} = A_0B_0 - \vec{A}\cdot\vec{B}$$

i) $\gamma\beta = Sinh\zeta$

Sabemos que:

$$\beta = tanh\zeta. \tag{1}$$

$$\gamma = \frac{1}{\sqrt{1-\beta^2}}. \tag{2}$$

i) $\gamma\beta = Sinh\zeta$

Por lo que:

$$\begin{aligned}
\gamma\beta &= \frac{\beta}{\sqrt{1-\beta^2}} \\
&= \frac{tanh\zeta}{\sqrt{1-tanh\zeta^2}} \\
&= \frac{tanh\zeta}{\sqrt{sech^2\zeta}} \\
&= \frac{tanh\zeta}{sech\zeta} \\
&= sinh\varepsilon
\end{aligned}$$

i) $\gamma\beta = sinh\zeta$

por lo tanto

$$\gamma\beta = sinh\zeta \tag{3}$$