

Electrodynamics: Homework 4

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1. We have

$$T^{0i} = F_{\gamma}^i F^{0\gamma} - \frac{1}{4} \eta^{i0} F_{\gamma\delta} F^{\gamma\delta}. \quad (1)$$

Given that $\eta^{\mu\nu} = 0$ if $\mu \neq \nu$ and $i \in \{1, 2, 3\}$ we conclude

$$T^{0i} = F_{\gamma}^i F^{0\gamma} = \eta_{\rho\gamma} F^{i\rho} F^{0\gamma} \quad (2)$$