

Homework problems # 3a

1. Starting with the canonical energy-momentum tensor $T_{\mu\nu}$ and using the freedom that allows to modify the tensor (while keeping $\partial^\mu T_{\mu\nu} = 0$)

$$T_{\mu\nu} \rightarrow \bar{T}_{\mu\nu} = T_{\mu\nu} + \partial_\sigma \Omega^{\sigma\mu\nu}$$

where $\Omega^{\sigma\mu\nu} = -\Omega^{\mu\sigma\nu}$, find the symmetric and conserved energy momentum tensor (the Belinfante tensor).