

Introduction to quantum electrodynamics  
135.045 - (VO 2,0) 2014S

**Homework #1 (Mar 3, 2014)**

- 1.1 Show that the Minkowski metric is invariant under a Lorentz boost in z-direction.
- 1.2 Calculate time, length, and energy that correspond to the mass of the positron, in natural units and in SI units.
- 1.3 Show eq. (2.4).

$$\nabla \cdot (\psi^* \nabla \psi - \nabla \psi^* \cdot \psi) = \frac{\partial}{\partial t} (\psi^* \dot{\psi} - \dot{\psi}^* \psi)$$