Phys. 402

Spring 2010

Qu_Ex 1

Given $t_R = t - \frac{|r - \hat{r}_0(t_R)|}{c}$, $\vec{R} = \vec{r} - \hat{r}_0(t_R)$

$R = |\vec{R}|$

$\vec{v}(t') = \frac{d}{dt'}\vec{r}_0(t')$ and $\vec{\beta} = \vec{v}/c$ $\quad \hat{n} = \frac{\vec{R}}{R}$

Compute:

1) $\frac{\partial t_R}{\partial t}$

2) $\frac{1}{c}\frac{\partial R}{\partial t}$

3) $\nabla(ct_R)$

4) ∇R