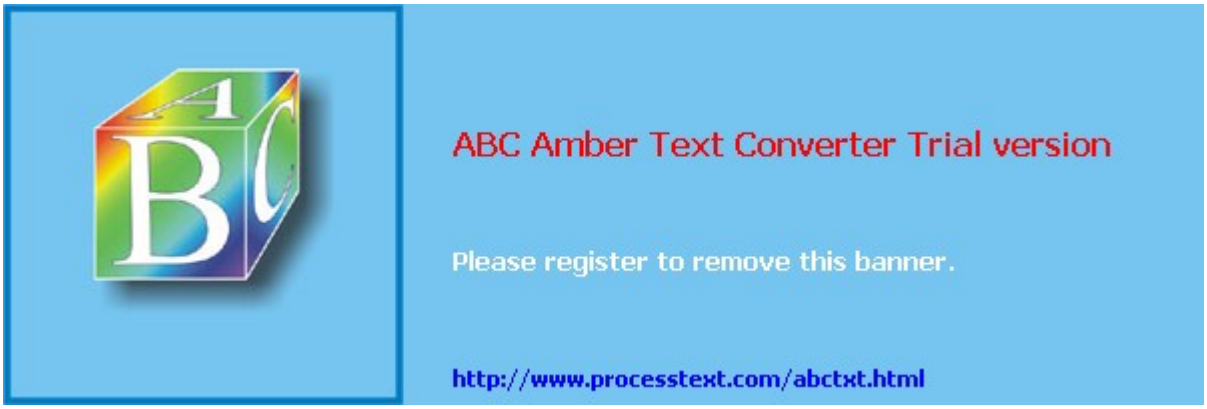

Specijalna teorija relativiteta

$$x = a_{11}x'+a_{12}t'$$
$$t = a_{21}x'+a_{22}t'$$
$$x' = a_{11}(x - vt)...$$
$$x = a_{11}(x'+vt')$$
$$x' = ct', x = ct$$
$$ct = a_{11}(ct'+vt')$$
$$ct' = a_{11}(ct - vt)$$
$$c^2tt' = a^2{}_{11}tt'(c^2 - v^2)$$
$$a_{11} = 1/(1 - v^2 \setminus c^2)^{0.5}$$
$$x' = (x - vt)/(1 - v^2 \setminus c^2)^{0.5}$$
$$y' = y$$
$$z' = z$$
$$t' = (t - (v/c^2)x)/(1 - v^2 \setminus c^2)^{0.5}$$
$$m = m_0/(1 - v^2 \setminus c^2)^{0.5}$$
$$\vec{p} = m\vec{v}$$
$$dE_k = dA = \vec{F}\vec{v}dt$$
$$\vec{F} = d/dt(m\vec{v})$$
$$dE_k = \{0.5m_0v^2/(1 - v^2 \setminus c^2)^{3/2}\}d/dt(v^2/c^2) + m_0v/(1 - v^2 \setminus c^2)^{1/2}dv/dt\}dt$$
$$vdv/dt = 0.5d/dt(v^2) = (c^2/2)d/dt(v^2/c^2)$$
$$\int dE_k = \int d(m_0c^2/(1 - v^2 \setminus c^2)^{1/2})$$
$$E_k = m_0c^2/(1 - v^2 \setminus c^2)^{1/2} + const.$$
$$const. = -m_0c^2$$
$$E_k = m_0c^2/(1 - v^2 \setminus c^2)^{1/2} - m_0c^2$$
$$E_k = mc^2 - m_0c^2$$
$$p_x = m_0v_x/(1 - v^2 \setminus c^2)^{1/2}$$
$$p_y = m_0v_y/(1 - v^2 \setminus c^2)^{1/2}$$
$$p_z = m_0v_z/(1 - v^2 \setminus c^2)^{1/2}$$
$$p_4 = im_0c/(1 - v^2 \setminus c^2)^{1/2} = i/c(mc^2) = iE/c$$
$$p = p^2{}_x + p_y{}^2 + p^2{}_z + (iE/c)^2$$
$$i = (-1)^{1/2}$$
$$p = (p^2{}_x + p_y{}^2 + p^2{}_z)^{1/2}$$
$$E = (p^2c^2 + m^2{}_0c^4)^{1/2}$$