$-\frac{\partial H}{\partial \mathbf{x}_a} = \dot{\mathbf{p}}_a = e_a \sum_{b \neq a} \frac{e_b \hat{\mathbf{n}}_{ab}}{R_{ab}^2} \left[1 - \left(\frac{1}{2m_a m_b c^2} \right) (\mathbf{p}_a \cdot \mathbf{p}_b) \right] - e_a \sum_{b \neq a} \frac{3e_b \hat{\mathbf{n}}_{ab}}{2m_a m_b c^2 R_{ab}^2} (\mathbf{p}_a \cdot \hat{\mathbf{n}}_{ab}) (\mathbf{p}_b \cdot \hat{\mathbf{n}}_{ab}) + e_a \sum_{b \neq a} \frac{3e_b \hat{\mathbf{n}}_{ab}}{2m_a m_b c^2 R_{ab}^2} (\mathbf{p}_a \cdot \hat{\mathbf{n}}_{ab}) (\mathbf{p}_b \cdot \hat{\mathbf{n}}_{ab}) + e_a \sum_{b \neq a} \frac{3e_b \hat{\mathbf{n}}_{ab}}{2m_a m_b c^2 R_{ab}^2} (\mathbf{p}_a \cdot \hat{\mathbf{n}}_{ab}) (\mathbf{p}_b \cdot \hat{\mathbf{n}}_{ab}) + e_a \sum_{b \neq a} \frac{3e_b \hat{\mathbf{n}}_{ab}}{2m_a m_b c^2 R_{ab}^2} (\mathbf{p}_a \cdot \hat{\mathbf{n}}_{ab}) (\mathbf{p}_b \cdot \hat{\mathbf{n}}_{ab}) + e_a \sum_{b \neq a} \frac{3e_b \hat{\mathbf{n}}_{ab}}{2m_a m_b c^2 R_{ab}^2} (\mathbf{p}_a \cdot \hat{\mathbf{n}}_{ab}) (\mathbf{p}_b \cdot \hat{\mathbf{n}}_{ab}) (\mathbf{p}_b \cdot \hat{\mathbf{n}}_{ab}) + e_a \sum_{b \neq a} \frac{3e_b \hat{\mathbf{n}}_{ab}}{2m_a m_b c^2 R_{ab}^2} (\mathbf{p}_a \cdot \hat{\mathbf{n}}_{ab}) (\mathbf{p}_b \cdot \hat{\mathbf{n}}_{$

 $e_a \sum_{b \neq a} \frac{e_b}{2m_a m_b c^2 R_{ab}^2} \left[\mathbf{p}_a \left(\mathbf{p}_b \cdot \hat{\mathbf{n}}_{ab} \right) + \mathbf{p}_b \left(\mathbf{p}_a \cdot \hat{\mathbf{n}}_{ab} \right) \right] + \left(\frac{e_a}{m_a c} \right) \frac{\left(\mathbf{p}_a \times \mathbf{m} \right)}{x_a^3} - \left(\frac{3e_a}{m_a c} \right) \left[\mathbf{p}_a \cdot \left(\mathbf{m} \times \mathbf{x}_a \right) \right] \frac{\mathbf{x}_a}{x_a^5} - \left(\frac{3e_a}{m_a c} \right) \left[\mathbf{p}_a \cdot \left(\mathbf{m} \times \mathbf{x}_a \right) \right] \frac{\mathbf{x}_a}{x_a^5} - \left(\frac{3e_a}{m_a c} \right) \left[\mathbf{p}_a \cdot \left(\mathbf{m} \times \mathbf{x}_a \right) \right] \frac{\mathbf{x}_a}{x_a^5} - \left(\frac{3e_a}{m_a c} \right) \left[\mathbf{p}_a \cdot \left(\mathbf{m} \times \mathbf{x}_a \right) \right] \frac{\mathbf{x}_a}{x_a^5} - \left(\frac{3e_a}{m_a c} \right) \left[\mathbf{p}_a \cdot \left(\mathbf{m} \times \mathbf{x}_a \right) \right] \frac{\mathbf{x}_a}{x_a^5} - \left(\frac{3e_a}{m_a c} \right) \left[\mathbf{p}_a \cdot \left(\mathbf{m} \times \mathbf{x}_a \right) \right] \frac{\mathbf{x}_a}{x_a^5} - \left(\frac{3e_a}{m_a c} \right) \left[\mathbf{p}_a \cdot \left(\mathbf{m} \times \mathbf{x}_a \right) \right] \frac{\mathbf{x}_a}{x_a^5} - \left(\frac{3e_a}{m_a c} \right) \left[\mathbf{p}_a \cdot \left(\mathbf{m} \times \mathbf{x}_a \right) \right] \frac{\mathbf{x}_a}{x_a^5} - \left(\frac{3e_a}{m_a c} \right) \left[\mathbf{p}_a \cdot \left(\mathbf{m} \times \mathbf{x}_a \right) \right] \frac{\mathbf{x}_a}{x_a^5} - \left(\frac{3e_a}{m_a c} \right) \left[\mathbf{p}_a \cdot \left(\mathbf{m} \times \mathbf{x}_a \right) \right] \frac{\mathbf{x}_a}{x_a^5} - \left(\frac{3e_a}{m_a c} \right) \left[\mathbf{p}_a \cdot \left(\mathbf{m} \times \mathbf{x}_a \right) \right] \frac{\mathbf{x}_a}{x_a^5} - \left(\frac{3e_a}{m_a c} \right) \left[\mathbf{p}_a \cdot \left(\mathbf{m} \times \mathbf{x}_a \right) \right] \frac{\mathbf{x}_a}{x_a^5} - \left(\frac{3e_a}{m_a c} \right) \left[\mathbf{p}_a \cdot \left(\mathbf{m} \times \mathbf{x}_a \right) \right] \frac{\mathbf{x}_a}{x_a^5} - \left(\frac{3e_a}{m_a c} \right) \frac{\mathbf{x}_a}{x_a^5} - \left(\frac{3e_a}{m_$

 $\left(\frac{2e_a^2}{c^2}\right) \frac{\left[m^2\mathbf{x}_a - \mathbf{m}\left(\mathbf{m}\cdot\mathbf{x}_a\right)\right]}{x_a^6} + \left(\frac{6e_a^2}{c^2}\right) \left[m^2x_a^2 - (\mathbf{m}\cdot\mathbf{x}_a)^2\right] \frac{\mathbf{x}_a}{x_a^8}$