

$$\left\langle \frac{\partial E}{\partial m_f} \right\rangle = \left\langle \frac{\partial E}{\partial e^c} \right\rangle = \left\langle \frac{\partial E}{\partial e^d} \right\rangle = \left\langle \frac{\partial E}{\partial e^f} \right\rangle = 0.$$