

$$E_{(i) \rightarrow (i)} \left[-a_i t_i, -\frac{x_i y_i}{T_i}, \sqrt{T_i} + \left(-a_i \sqrt{T_i} - a_i^2 \sqrt{T_i} - \frac{2 a_i x_i y_i}{\sqrt{T_i}} - \frac{3 x_i^2 y_i^2}{4 T_i^{3/2}} \right) \epsilon + O[\epsilon]^2 \right]$$