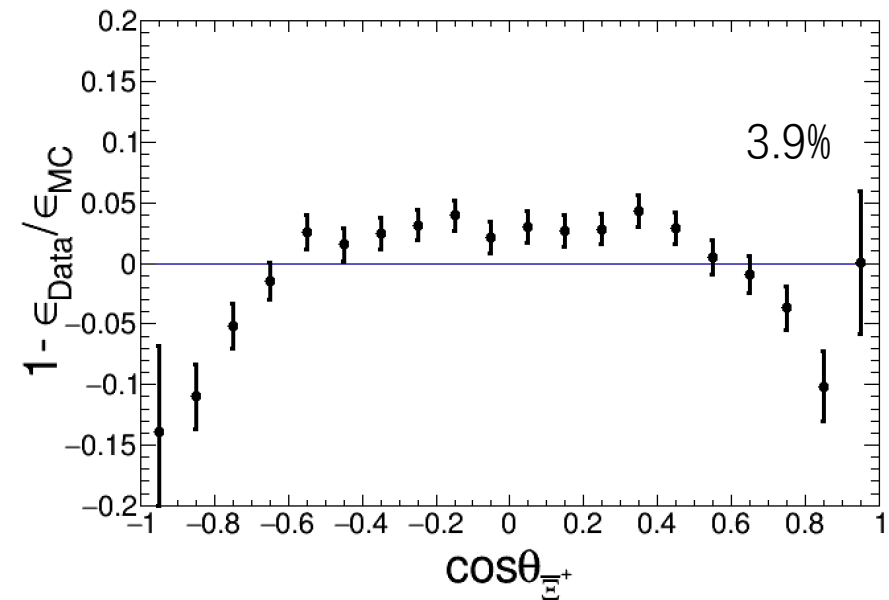
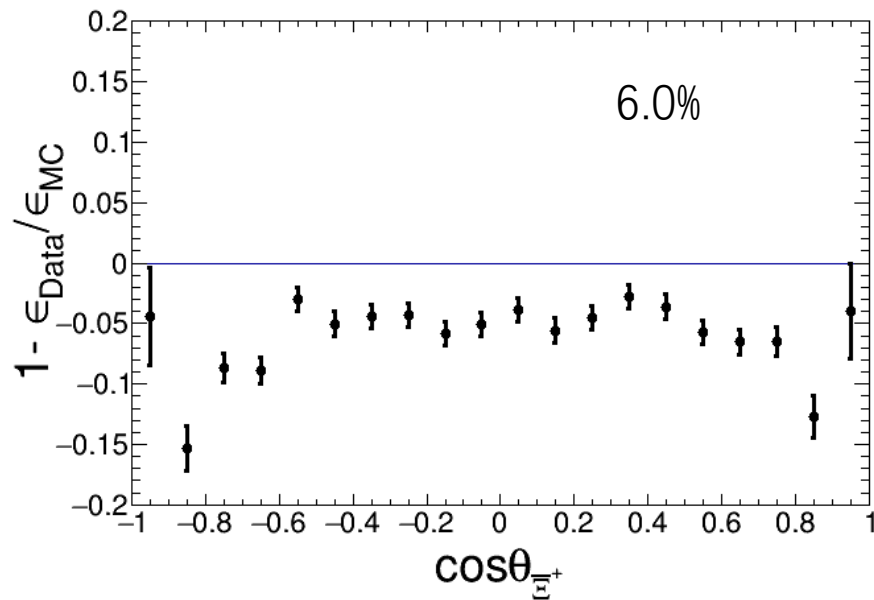
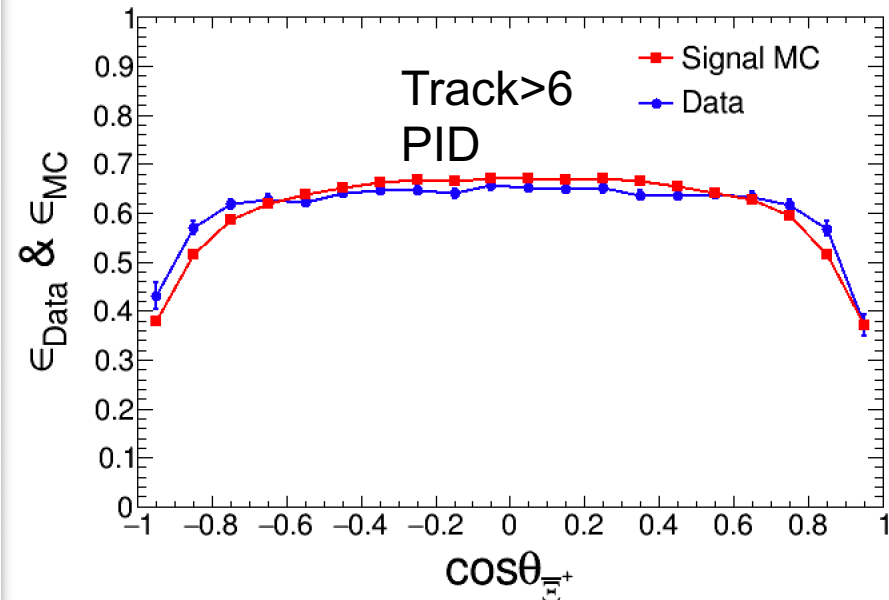
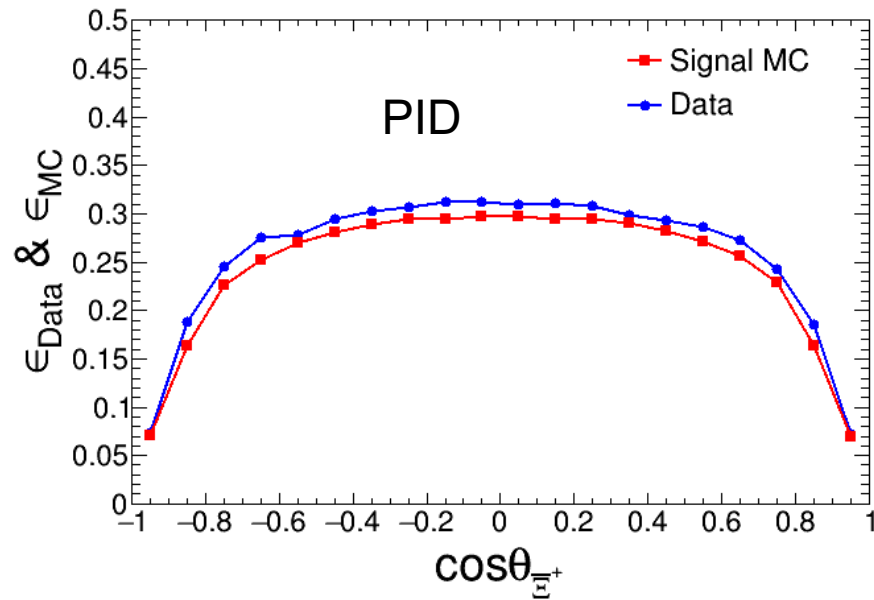
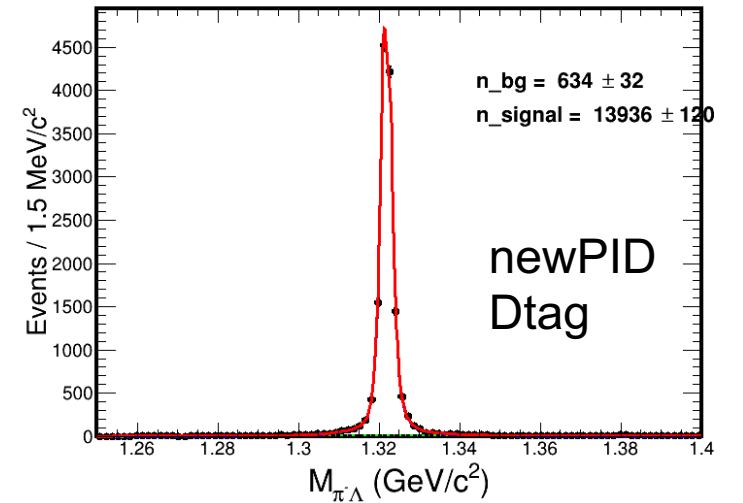
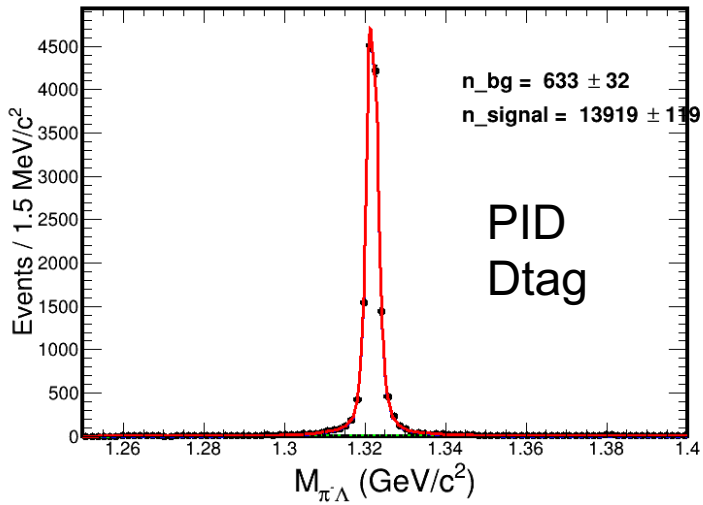
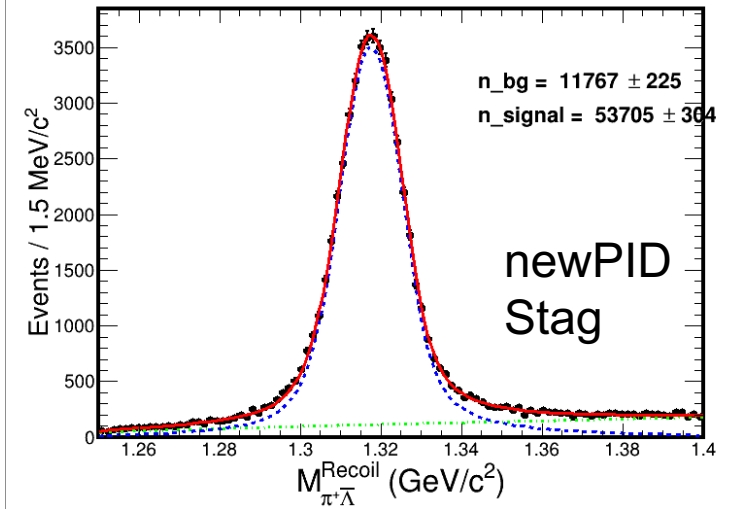
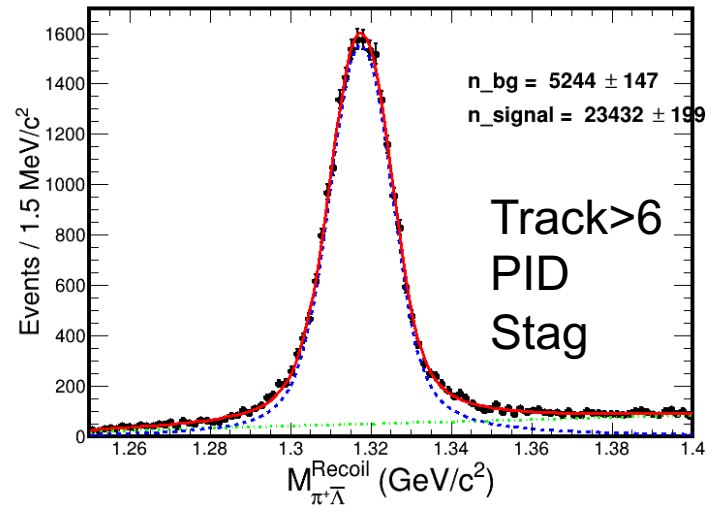
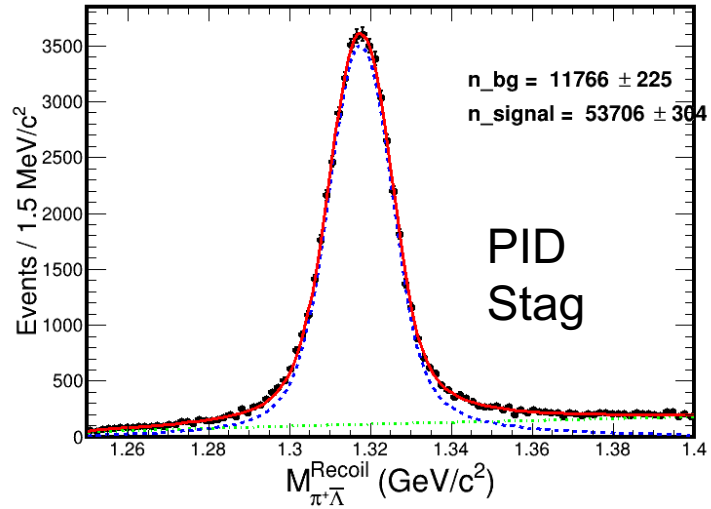


2009+2012



Gauss + 3rd Cheby

Total bins Fit 2009



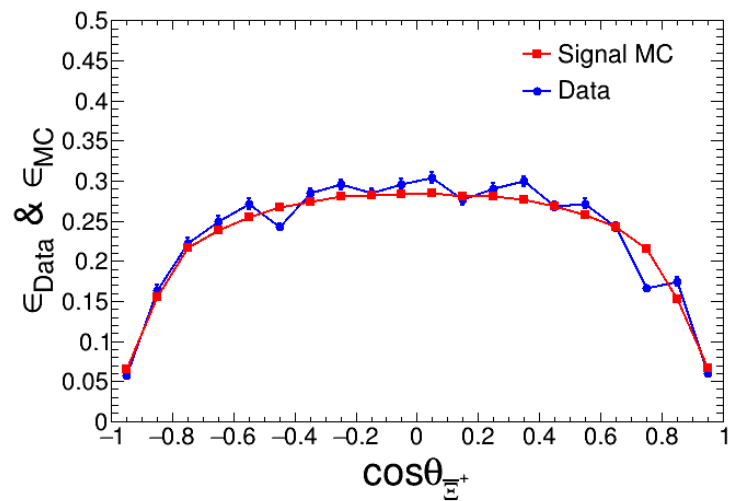
PID → newPID :

- ※ 统一了xi质量从顶点拟合取出
- ※ 统一了从分析程序外部boost

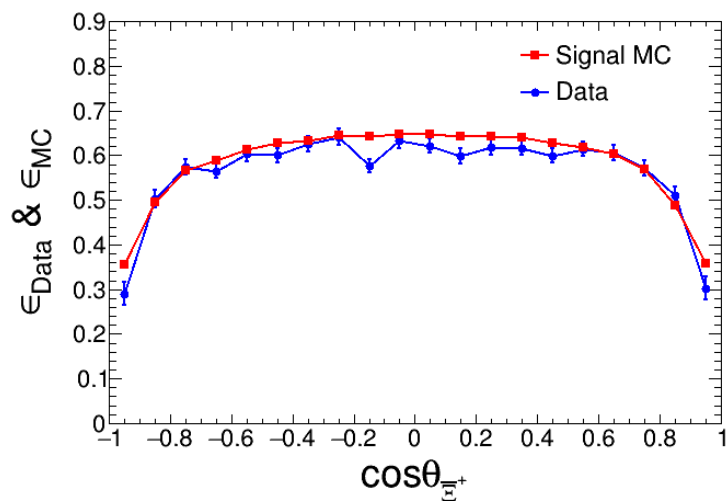
证明了xi重建效率整个过程没有问题，并且以上两点对结果影响很小

2009

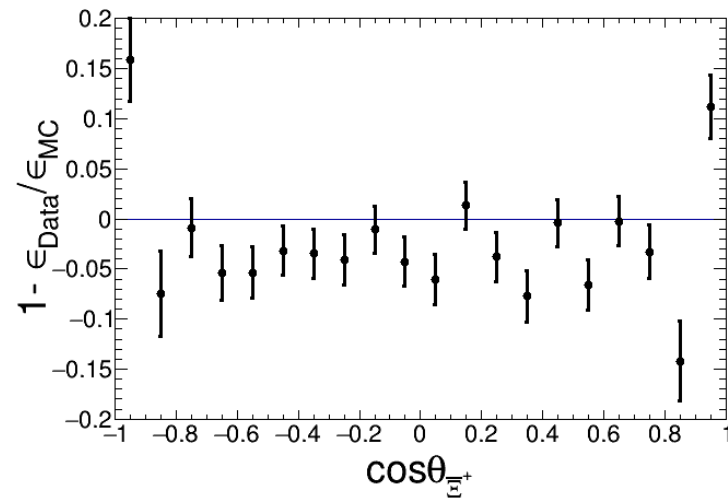
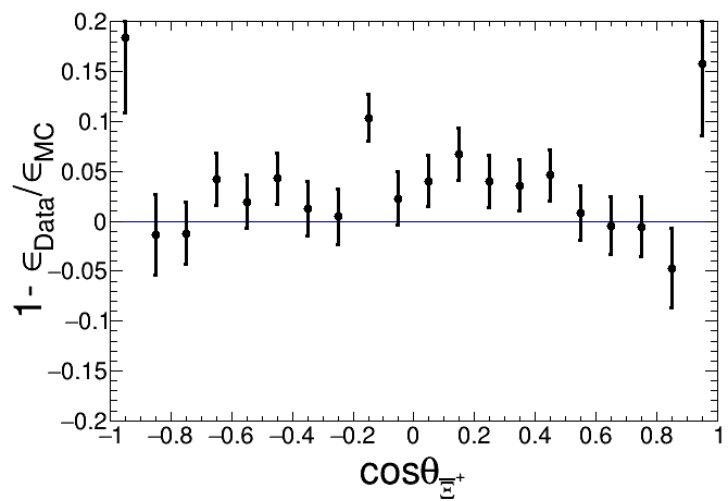
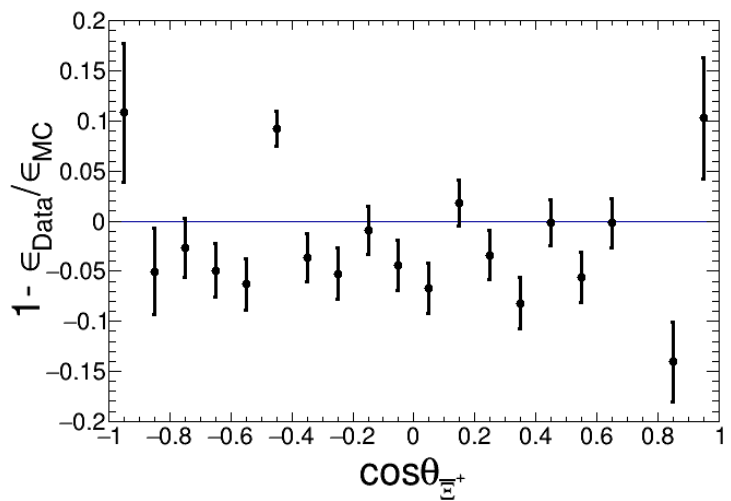
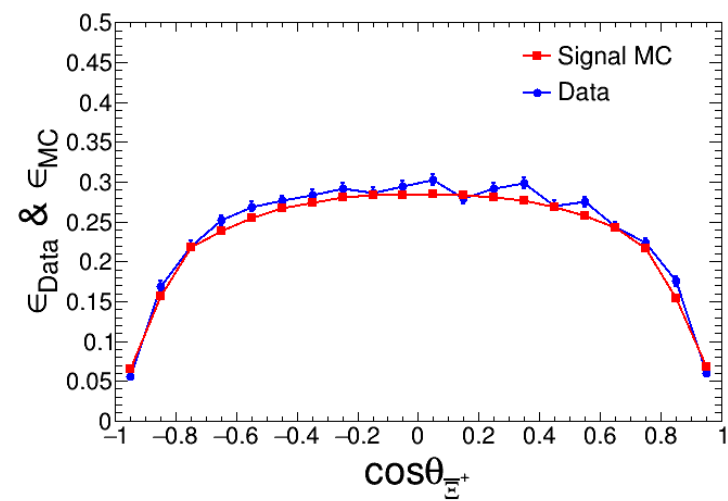
PID



Track>6
PID



newPID



modified Gauss + 3rd Cheby

$$A(p_{\pi^+}, p_{\pi^-}, p_{J/\psi}) = A(-p_{\pi^-}, -p_{\pi^+}, -p_{J/\psi})$$

调研

题目：Study of CP violation in $\psi' \rightarrow \pi^+ \pi^- J/\psi (\rightarrow \mu^+ \mu^-)$

- CP破坏特征量： q_2, q_{zz}, q_{EE}
- $A_{CP}^q = \frac{N_+ - N_-}{N_+ + N_-}$ (-: $q < 0$; +: $q > 0$)

通过三个特征量总共得到三个ACP观测量：

$$\begin{matrix} A_{CP}^{q_2} \\ A_{CP}^{q_{zz}} \\ A_{CP}^{q_{EE}} \end{matrix}$$

方法1

BES上CP破坏研究的开端

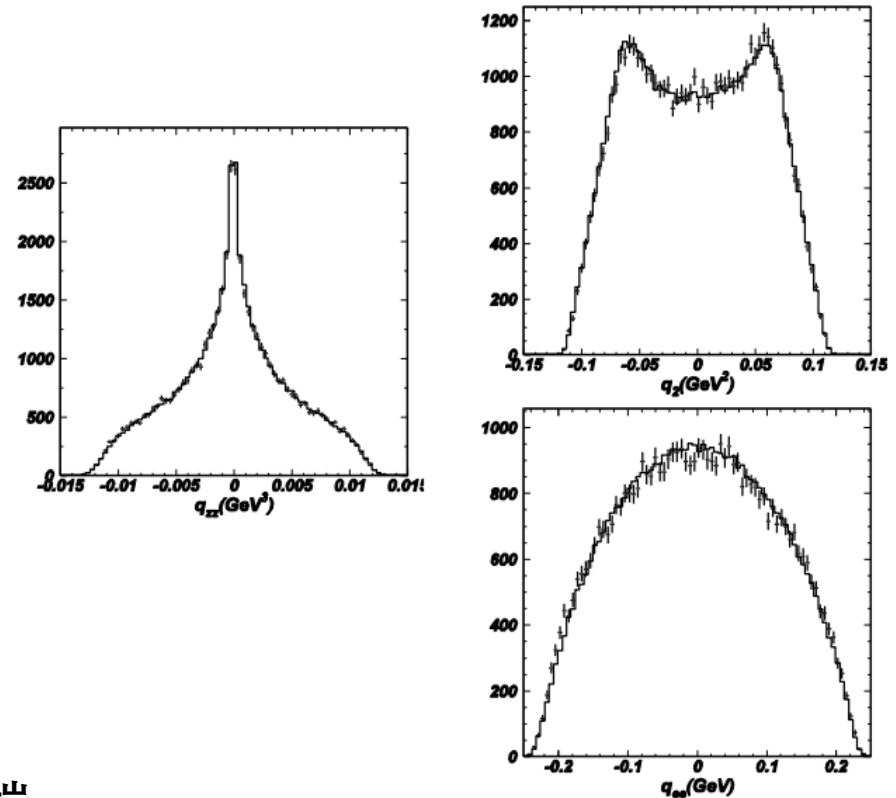


图 8.1: q_{zz} 、 q_2 和 q_{EE} 的分布

方法2

- 参数化：CP守恒参数，CP破坏参数 ($f_1, f_5, f_7, f_8, f_{11}$)
- CP守恒模型：固定CP破坏参数为0，并进行拟合
- CP破坏模型：拟合全部参数
- 结果：CP破坏和CP守恒模型都拟合成功，且拟合结果一致
- 拟合优度分析：优度相同，显著水平CP破坏模型(0.005)低于CP守恒模型(0.014)
- 结论：实际的实验数据中不包含模型中这五个参数描述的CP破坏，并旁证了方法1的结果。

$$\begin{aligned}
 V_2 = g^2 & \left\{ + g_{\mu\nu} \left\{ f_0 + \frac{p_{e^+} \cdot (p_{\pi^+} - p_{\pi^-})}{m_{\psi'}^2} f_1 + \frac{p_{\pi^+} \cdot p_{\pi^-}}{m_{\psi'}^2} f_2 + \frac{[p_{e^+} \cdot (p_{\pi^+} - p_{\pi^-})]^2}{m_{\psi'}^2} f_3 \right\} \right. \\
 & + \frac{p_{\pi^+ \mu} p_{\pi^+ \nu} + p_{\pi^- \mu} p_{\pi^- \nu}}{m_{\psi'}^2} f_4 + \frac{p_{\pi^+ \mu} p_{\pi^+ \nu} - p_{\pi^- \mu} p_{\pi^- \nu}}{m_{\psi'}^2} f_5 + \frac{p_{\pi^+ \mu} p_{\pi^- \nu} + p_{\pi^- \mu} p_{\pi^+ \nu}}{m_{\psi'}^2} f_6 \\
 & + \frac{p_{\pi^+ \mu} p_{\pi^- \nu} - p_{\pi^- \mu} p_{\pi^+ \nu}}{m_{\psi'}^2} f_7 + \frac{\varepsilon_{\alpha\beta\mu\nu} (p_{e^+}^\alpha p_{\pi^+}^\beta + p_{e^+}^\alpha p_{\pi^-}^\beta)}{m_{\psi'}^2} f_8 + \\
 & \frac{\varepsilon_{\alpha\beta\mu\nu} (p_{e^+}^\alpha p_{\pi^+}^\beta + p_{e^+}^\alpha p_{\pi^-}^\beta) [p_{e^+} \cdot (p_{\pi^+} - p_{\pi^-})]}{m_{\psi'}^4} f_9 + \frac{\varepsilon_{\alpha\beta\mu\nu} (p_{e^+}^\alpha p_{\pi^+}^\beta - p_{e^+}^\alpha p_{\pi^-}^\beta)}{m_{\psi'}^2} f_{10} \\
 & \left. + \frac{\varepsilon_{\alpha\beta\mu\nu} (p_{e^+}^\alpha p_{\pi^+}^\beta - p_{e^+}^\alpha p_{\pi^-}^\beta) [p_{e^+} \cdot (p_{\pi^+} - p_{\pi^-})]}{m_{\psi'}^4} f_{11} + \frac{\varepsilon_{\alpha\beta\mu\nu} p_{\pi^+}^\alpha p_{\pi^-}^\beta}{m_{\psi'}^2} i f_{12} \right\} \quad (4.2)
 \end{aligned}$$