

$$\begin{aligned}
A(\eta_8 \rightarrow 4\pi^0) &= \frac{1}{\sqrt{2}} A(\eta_0 \rightarrow 4\pi^0) \\
&= -\frac{N_C}{24\pi^2} \frac{\epsilon_{\mu\nu\alpha\beta}}{\sqrt{3}F_\pi^5} p_1^\mu p_2^\nu p_3^\alpha p_4^\beta \{ (c_1 - c_2 - c_3) [g_{f_2,1}^\rho(s_{12}, s_{23}, s_{14}, s_{34}; s_{13}) \\
&\quad + g_{f_2,1}^\rho(s_{12}, s_{14}, s_{23}, s_{34}; s_{24}) - g_{f_2,1}^\rho(s_{13}, s_{23}, s_{14}, s_{24}; s_{12}) \\
&\quad - g_{f_2,1}^\rho(s_{13}, s_{14}, s_{23}, s_{24}; s_{34}) - g_{f_2,1}^\rho(s_{12}, s_{24}, s_{13}, s_{34}; s_{14}) \\
&\quad - g_{f_2,1}^\rho(s_{12}, s_{13}, s_{24}, s_{34}; s_{23})] \\
&\quad + 2c_3 [g_{f_2,1}^\rho(s_{12}, s_{23}, s_{14}, s_{34}; s_{13}) + g_{f_2,1}^\rho(s_{12}, s_{14}, s_{23}, s_{34}; s_{24}) \\
&\quad - g_{f_2,1}^\rho(s_{13}, s_{23}, s_{14}, s_{24}; s_{12}) - g_{f_2,1}^\rho(s_{13}, s_{14}, s_{23}, s_{24}; s_{34}) \\
&\quad - g_{f_2,1}^\rho(s_{12}, s_{24}, s_{13}, s_{34}; s_{14}) - g_{f_2,1}^\rho(s_{12}, s_{13}, s_{24}, s_{34}; s_{23})] \}
\end{aligned} \tag{1.6}$$

	剩余事例数	效率 (%)	误差 (%)
New Generator	115466	1.28	
PHSP	127965	1.42	

$$g_{f_2,1}^\rho(v, \omega, x, y; s) = \left[ \frac{M_\rho^2(v - \omega)}{(M_\rho^2 - \frac{1}{2}(v + \omega))^2} - \frac{M_\rho^2(x - y)}{(M_\rho^2 - \frac{1}{2}(x + y))^2} \right] \frac{M_{f_2}^2}{M_{f_2}^2 - s} \tag{1.7}$$

$$g_{f_2,2}^\rho(v, \omega, x, y; s) = \frac{M_\rho^4(M_\rho^2(v - \omega - x + y) - vy + \omega x)}{(M_\rho^2 - \frac{1}{2}(v + \omega))^2(M_\rho^2 - \frac{1}{2}(x + y))^2} \frac{M_{f_2}^2}{M_{f_2}^2 - s} \tag{1.8}$$

$$c_1 - c_2 = 1.21, c_3 = 0.93 \tag{1.9}$$

$$\begin{aligned}
\mathcal{A}(\eta_8 \rightarrow 4\pi^0) &= \frac{1}{\sqrt{2}} \mathcal{A}(\eta_0 \rightarrow 4\pi^0) = -\frac{N_c}{24\pi^2} \frac{\epsilon_{\mu\nu\alpha\beta}}{\sqrt{3}F_\pi^5} p_1^\mu p_2^\nu p_3^\alpha p_4^\beta \{ (c_1 - c_2 - c_3) [\mathcal{G}_{f_2,1}^\rho(s_{12}, s_{23}, s_{14}, s_{34}; s_{13}) \\
&+ \mathcal{G}_{f_2,1}^\rho(s_{12}, s_{14}, s_{23}, s_{34}; s_{24}) - \mathcal{G}_{f_2,1}^\rho(s_{13}, s_{23}, s_{14}, s_{24}; s_{12}) - \mathcal{G}_{f_2,1}^\rho(s_{13}, s_{14}, s_{23}, s_{24}; s_{34}) \\
&- \mathcal{G}_{f_2,1}^\rho(s_{12}, s_{24}, s_{13}, s_{34}; s_{14}) - \mathcal{G}_{f_2,1}^\rho(s_{12}, s_{13}, s_{24}, s_{34}; s_{23})] + 2c_3 [\mathcal{G}_{f_2,2}^\rho(s_{12}, s_{23}, s_{14}, s_{34}; s_{13}) \\
&+ \mathcal{G}_{f_2,2}^\rho(s_{12}, s_{14}, s_{23}, s_{34}; s_{24}) - \mathcal{G}_{f_2,2}^\rho(s_{13}, s_{23}, s_{14}, s_{24}; s_{12}) - \mathcal{G}_{f_2,2}^\rho(s_{13}, s_{14}, s_{23}, s_{24}; s_{34}) \\
&- \mathcal{G}_{f_2,2}^\rho(s_{12}, s_{24}, s_{13}, s_{34}; s_{14}) - \mathcal{G}_{f_2,2}^\rho(s_{12}, s_{13}, s_{24}, s_{34}; s_{23})] \},
\end{aligned}$$

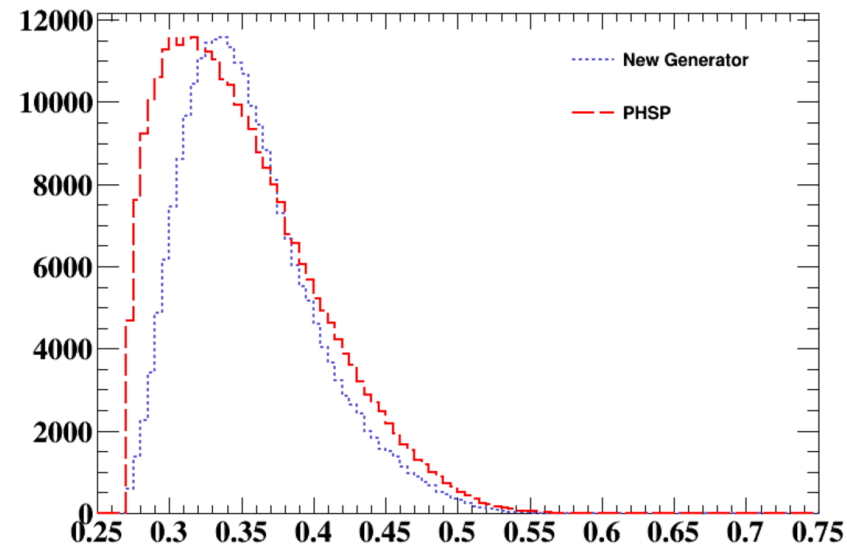
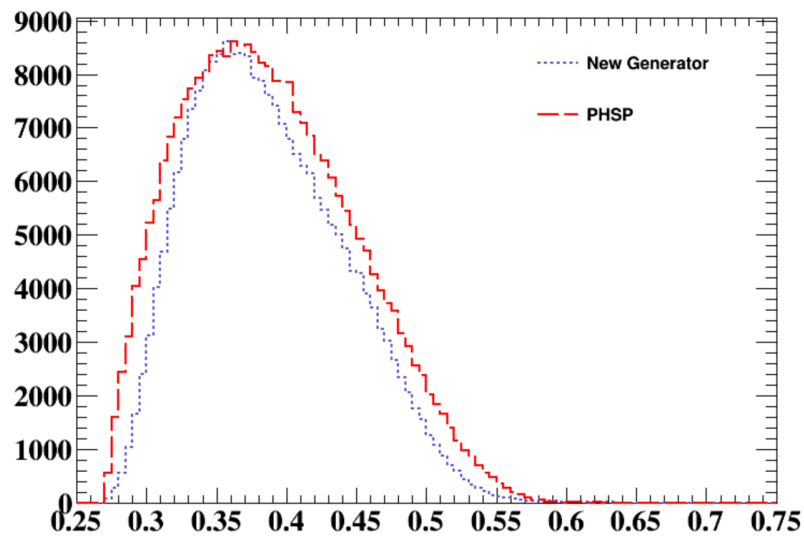
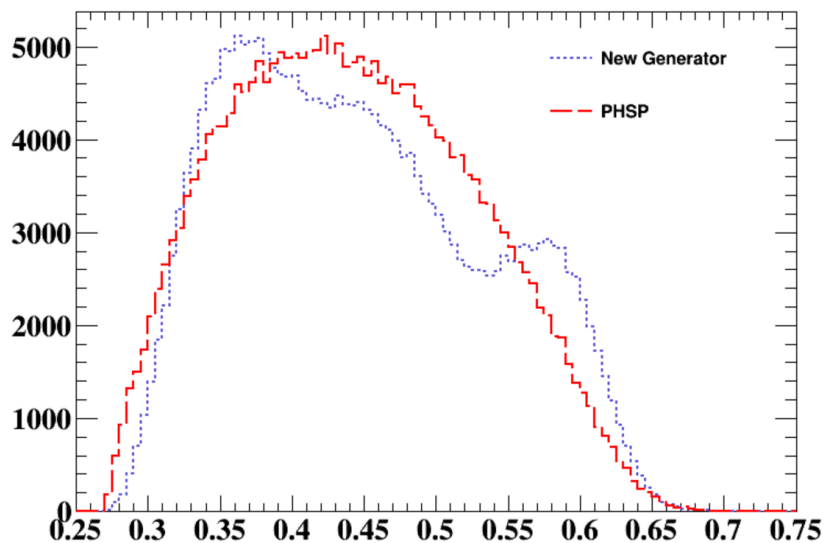
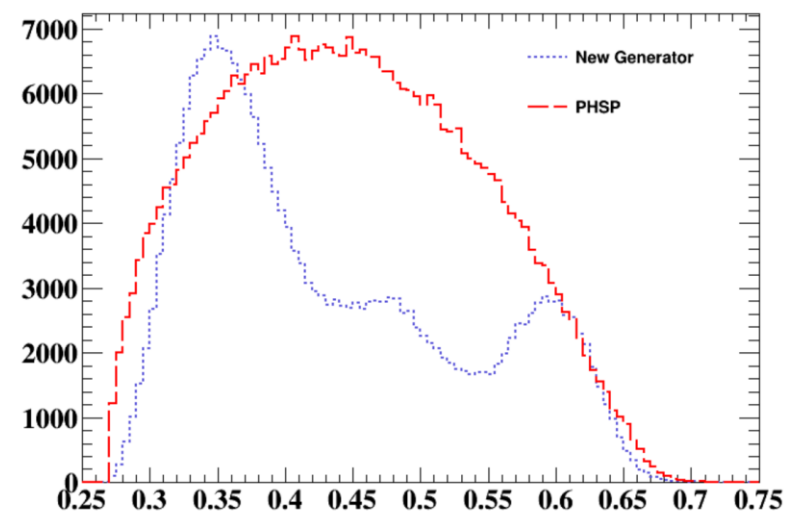
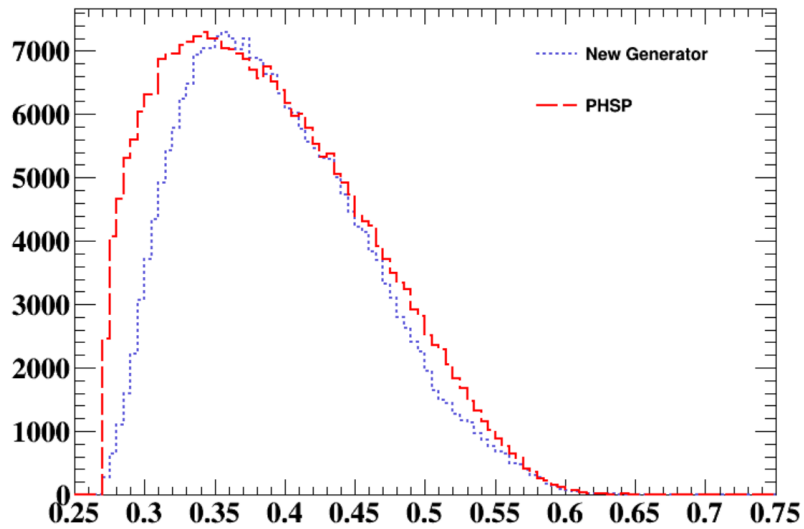
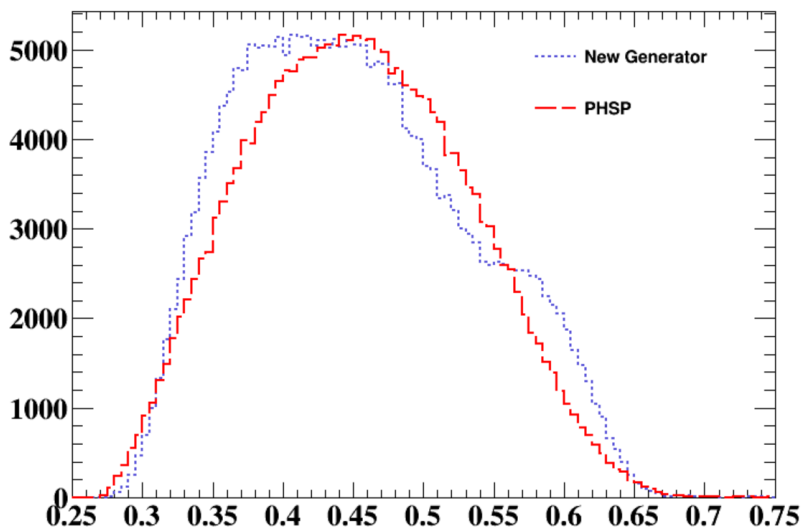
$$\mathcal{G}_{f_2,1}^\rho(v, w, x, y; s) = \left[ \frac{M_\rho^2(v-w)}{(M_\rho^2 - \frac{1}{2}(v+w))^2} - \frac{M_\rho^2(x-y)}{(M_\rho^2 - \frac{1}{2}(x+y))^2} \right] \frac{M_{f_2}^2}{M_{f_2}^2 - s},$$

$$\mathcal{G}_{f_2,2}^\rho(v, w, x, y; s) = \frac{M_\rho^4(M_\rho^2(v-w-x+y) - vy + wx)}{(M_\rho^2 - \frac{1}{2}(v+w))^2(M_\rho^2 - \frac{1}{2}(x+y))^2} \frac{M_{f_2}^2}{M_{f_2}^2 - s}.$$

(35)

	总事例数	剩余事例数	效率 (%)	误差 (%)
New Generator	9000000	125767	1.40	1.43
PHSP	9000000	127965	1.42	

# $M(\pi^0\pi^0)$



# $M(\pi^0 \pi^0 \pi^0)$

