|  | $\kappa_{\mathrm{NR}}^{2 K 2 \pi}$ | $\kappa_{\mathrm{NR}}^{4 K}$ | $\kappa_{\mathrm{NR}}^{4 \pi}$ | $\kappa_{\mathrm{bkg}}^{2 K 2 \pi}$ | $\kappa_{\text {bkg }}^{4 K}$ | $\kappa_{\text {bkg }}^{4 \pi}$ | $\xi_{\mathrm{NR}}^{2 K 2 \pi}$ | $\xi_{\mathrm{NR}}^{4 K}$ | $\xi_{\mathrm{NR}}^{4 \pi}$ |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| $\mathcal{B}\left(B_{s}^{0} \rightarrow \eta_{c} \phi\right)$ | $+0.22$ | -0.00 | -0.05 | -0.19 | $+0.00$ | -0.00 | $+0.55$ | +0.04 | +0.13 |
| $\kappa_{\mathrm{NR}}^{2 K 2 \pi}$ |  | -0.00 | -0.01 | $+0.65$ | -0.00 | -0.00 | $+0.07$ | +0.01 | +0.02 |
| $\kappa_{\text {NR }}^{4 K}$ |  |  | -0.01 | +0.00 | -0.06 | -0.00 | +0.00 | $+0.37$ | $+0.02$ |
| $\kappa_{\mathrm{NR}}^{4 \pi}$ |  |  |  | -0.00 | -0.01 | $+0.25$ | -0.10 | +0.09 | -0.72 |
| $\kappa_{\text {bkg }}^{2 K 2 \pi}$ |  |  |  |  | $+0.00$ | -0.00 | $-0.47$ | -0.01 | -0.01 |
| $\kappa_{\text {bkg }}^{4 K}$ |  |  |  |  |  | -0.00 | +0.01 | -0.21 | +0.02 |
| $\kappa_{\text {bkg }}^{4 \pi}$ |  |  |  |  |  |  | -0.01 | +0.01 | $-0.07$ |
| $\xi_{\text {NR }}^{2 K 2 \pi}$ |  |  |  |  |  |  |  | -0.02 | +0.17 |
| $\xi^{4 K}$ |  |  |  |  |  |  |  |  | -0.12 |
|  |  | $\xi_{\text {bkg }}^{2 K 2 \pi}$ | $\xi_{\text {bkg }}^{4 K}$ | $\xi_{\text {bkg }}^{4 \pi}$ | $m_{\eta_{c}}$ | $m_{J / \psi}$ | $\delta \varphi_{2 K 2 \pi}$ | $\delta \varphi_{4 K}$ | $\delta \varphi_{4 \pi}$ |
| $\mathcal{B}\left(B_{s}^{0} \rightarrow \eta_{c} \phi\right)$ |  | -0.40 | -0.04 | -0.11 | -0.02 | $+0.00$ | -0.23 | +0.28 | -0.44 |
| $\kappa_{\mathrm{NR}}^{2 K 2 \pi}$ |  | $-0.00$ | -0.01 | -0.02 | $+0.01$ | $+0.00$ | $-0.02$ | +0.06 | -0.09 |
| $\kappa_{\mathrm{NR}}^{4 K}$ |  | -0.00 | -0.26 | -0.01 | -0.03 | -0.00 | +0.01 | -0.10 | +0.00 |
| $\kappa_{\text {NR }}^{4 \pi}$ |  | $+0.05$ | -0.05 | $+0.52$ | +0.45 | -0.04 | $-0.15$ | +0.02 | +0.09 |
| $\kappa_{\text {bkg }}^{2 K 2 \pi}$ |  | $+0.55$ | +0.01 | $+0.01$ | -0.03 | $+0.00$ | +0.49 | -0.05 | +0.08 |
| $\kappa_{\text {bkg }}^{4 K}$ |  | -0.00 | +0.04 | -0.01 | -0.03 | -0.00 | +0.01 | -0.17 | -0.00 |
| $\kappa_{\text {bkg }}^{4 \pi}$ |  | $+0.00$ | -0.00 | -0.33 | +0.04 | -0.00 | -0.01 | +0.00 | +0.03 |
| $\xi_{\mathrm{NR}}^{2 K 2 \pi}$ |  | -0.82 | -0.00 | -0.12 | -0.18 | $+0.01$ | $-0.23$ | +0.14 | -0.24 |
| $\xi_{\mathrm{NR}}^{4 K}$ |  | -0.00 | -0.52 | $+0.07$ | $+0.21$ | -0.01 | -0.08 | +0.07 | -0.01 |
| $\xi_{\text {NR }}^{4 \pi}$ |  | -0.09 | +0.06 | -0.49 | -0.61 | $+0.01$ | +0.18 | -0.01 | +0.05 |
| $\xi_{\text {bkg }}^{2 K 2 \pi}$ |  |  | +0.01 | $+0.07$ | $+0.07$ | -0.02 | $+0.41$ | -0.11 | +0.18 |
| $\xi_{\text {bkg }}^{4 K}$ |  |  |  | -0.03 | -0.11 | -0.02 | $+0.05$ | -0.26 | +0.01 |
| $\xi_{\mathrm{bkg}}^{4 \pi}$ |  |  |  |  | +0.34 | $-0.02$ | -0.09 | -0.01 | +0.28 |
| $m_{\eta_{c}}$ |  |  |  |  |  | -0.01 | $-0.35$ | $+0.07$ | +0.02 |
| $m_{J / \psi}$ |  |  |  |  |  |  | +0.01 | +0.01 | -0.01 |
| $\delta \varphi_{2 K 2 \pi}$ |  |  |  |  |  |  |  | -0.09 | +0.10 |
| $\delta \varphi_{4 K}$ |  |  |  |  |  |  |  |  | -0.12 |

