

$$A(B \rightarrow D^0(\rightarrow f_D)K^-) = A_B \cdot (A_{D^0} + r_B e^{i(\delta_B - \gamma)} A_{\bar{D}^0})$$

$$d\Gamma(B \rightarrow D^0(\rightarrow f_D)K^-) \propto A_B^2 \cdot \left(A_{D^0}^2 + r_B^2 A_{\bar{D}^0}^2 + 2r_B \mathbb{R}(A_{D^0} A_{\bar{D}^0}^* e^{-i(\delta_B - \gamma)}) \right) dp$$

$$A_{D^0} = A_{D^0} (\pi^+(\vec{p}_1)\pi^+(\vec{p}_2)\pi^-(\vec{p}_3)\pi^-(\vec{p}_4))$$

$$A_{\bar{D}^0} = A_{\bar{D}^0} (\pi^+(\vec{p}_1)\pi^+(\vec{p}_2)\pi^-(\vec{p}_3)\pi^-(\vec{p}_4))$$

$$A_{\bar{D}^0}(\pi^+(\vec{p}_1)\pi^+(\vec{p}_2)\pi^-(\vec{p}_3)\pi^-(\vec{p}_4)) = A_{D^0}(\pi^+(-\vec{\mathbf{p}}_3)\pi^+(-\vec{\mathbf{p}}_4)\pi^-(-\vec{\mathbf{p}}_1)\pi^-(-\vec{\mathbf{p}}_2))$$

$$\frac{A_{D^0}(\pi^+(\vec{p}_1)\pi^+(\vec{p}_2)\pi^-(\vec{p}_3)\pi^-(\vec{p}_4))}{A_{\bar{D}^0}(\pi^+(\vec{p}_1)\pi^+(\vec{p}_2)\pi^-(\vec{p}_3)\pi^-(\vec{p}_4))} = \frac{|A_{D^0}(\pi^+(\vec{p}_1)\pi^+(\vec{p}_2)\pi^-(\vec{p}_3)\pi^-(\vec{p}_4))|}{|A_{\bar{D}^0}(\pi^+(\vec{p}_1)\pi^+(\vec{p}_2)\pi^-(\vec{p}_3)\pi^-(\vec{p}_4))|} e^{i\Delta\delta(\pi^+(\vec{p}_1)\pi^+(\vec{p}_2)\pi^-(\vec{p}_3)\pi^-(\vec{p}_4))}$$

$$d\Gamma(B \rightarrow D^0(\rightarrow f_D)K^-) \propto A_B^2 \cdot \left(A_{D^0}^2 + r_B^2 A_{\bar{D}^0}^2 + 2r_B \mathbb{R}(A_{D^0} A_{\bar{D}^0}^* e^{-i(\delta_B - \gamma)}) \right) dp$$

$$d\Gamma(B \rightarrow (\pi^+(\vec{p}_1)\pi^+(\vec{p}_2)\pi^-(\vec{p}_3)\pi^-(\vec{p}_4))_D K^-) \propto A_B^2 \cdot \left(A_{D^0}^2(\pi^+(\vec{p}_1)\pi^+(\vec{p}_2)\pi^-(\vec{p}_3)\pi^-(\vec{p}_4)) + r_B^2 A_{D^0}^2(\pi^+(\vec{p}_3)\pi^+(\vec{p}_4)\pi^-(\vec{p}_1)\pi^-(\vec{p}_2)) + 2r_B A_{D^0}^2(\pi^+(\vec{p}_1)\pi^+(\vec{p}_2)\pi^-(\vec{p}_3)\pi^-(\vec{p}_4)) A_{D^0}^2(\pi^+(\vec{p}_3)\pi^+(\vec{p}_4)\pi^-(\vec{p}_1)\pi^-(\vec{p}_2)) \left[\cos(\Delta\delta(\vec{p}_1, \vec{p}_2, \vec{p}_3, \vec{p}_4)) \cos(\delta_B - \gamma) + \sin(\Delta\delta(\vec{p}_1, \vec{p}_2, \vec{p}_3, \vec{p}_4)) \sin(\delta_B - \gamma) \right] \right) dp$$

$$c_i = \frac{1}{N} \int_{p_i}^{p_i + \Delta p} dp A_{D^0}(\pi^+(\vec{p}_1)\pi^+(\vec{p}_2)\pi^-(\vec{p}_3)\pi^-(\vec{p}_4)) A_{D^0}(\pi^+(\vec{p}_3)\pi^+(\vec{p}_4)\pi^-(\vec{p}_1)\pi^-(\vec{p}_2)) \cos(\Delta\delta(\vec{p}_1, \vec{p}_2, \vec{p}_3, \vec{p}_4))$$

$$s_i = \frac{1}{N} \int_{p_i}^{p_i + \Delta p} dp A_{D^0} \left(\pi^+(p_1) \pi^+(p_2) \pi^-(p_3) \pi^-(p_4) \right) A_{D^0} \left(\pi^+(p_3) \pi^+(p_4) \pi^-(p_1) \pi^-(p_2) \right) \sin(\Delta\delta(p_1, p_2, p_3, p_4))$$

$$T_i = \int_{p_i}^{p_i + \Delta p} dp A_{D^0}^2 \left(\pi^+(p_1) \pi^+(p_2) \pi^-(p_3) \pi^-(p_4) \right)$$

$$\frac{d\Gamma}{dp_i + \Delta p} \propto A_B^2 \left(T_i + r_B^2 T_i + 2r_B \left[c_i \cos(\delta_B - \gamma) + s_i \sin(\delta_B - \gamma) \right] \right)$$

$$d\Gamma_i \propto 2r_B \left[c_i \cos(\delta_B - \gamma) + s_i \sin(\delta_B - \gamma) \right]$$

$$M_i^\pm = h_{CP^\pm} \left(K_i \pm 2c_i \sqrt{K_i K_i^*} + K_i^* \right)$$

$$M_{ij} = h_{corr} \left(K_i K_j^* + K_i^* K_j - 2\sqrt{K_i K_j^* K_i^* K_j} (c_i c_j + s_i s_j) \right)$$

$$d\Gamma(B \rightarrow (\pi^+(p_1) \pi^+(p_2) \pi^-(p_3) \pi^-(p_4))_D K^-) \propto 2r_B A_{D^0}^2 \left(\pi^+(p_1) \pi^+(p_2) \pi^-(p_3) \pi^-(p_4) \right) A_{D^0}^2 \left(\pi^+(p_3) \pi^+(p_4) \pi^-(p_1) \pi^-(p_2) \right) \\ \left[\cos(\Delta\delta(p_1, p_2, p_3, p_4)) \cos(\delta_B - \gamma) + \sin(\Delta\delta(p_1, p_2, p_3, p_4)) \sin(\delta_B - \gamma) \right] dp$$

$$c_i = \frac{1}{N} \int_{p_i}^{p_i + \Delta p} dp \frac{d\Phi}{dp} A_{D^0} \overline{A_{D^0}} \cos(\Delta\delta)$$

$$s_i = \frac{1}{N} \int_{p_i}^{p_i + \Delta p} dp \frac{d\Phi}{dp} A_{D^0} \overline{A_{D^0}} \sin(\Delta\delta)$$

$$d\Gamma_i \propto c_i \cos(\delta_B - \gamma) + s_i \sin(\delta_B - \gamma)$$