

Appendix 2.

(Copy to be kept in editorial office)

Appendix B

- Coefficients of eqns.(48)_{a-d}

$$t'_{s11} = s_7 (1 - C_T)^{-1}$$

where (°)

$$s_7 = \{ 3 [24u_1^2 \bar{u}_1 + C_{DDD} d_1^2 \bar{d}_1 + C_{TTT} t_{s1}^2 \bar{t}_{s1} + C_{DTT} (d_1 t_{s1} t_{s1})^* + C_{DDT} (t_{s1} d_1 d_1)^* + \\ - 6(t_{s1} u_1 u_1)^*] + (1 + C_T + C_{TT}) (t_{s1} v_1 v_1)^* + C_{DT} (d_1 v_1 v_1)^* + \\ - 2(2 + C_T) (u_1 v_1 v_1)^* \} / 8 + \\ + (3\bar{u}_1 - \bar{t}_{s1}) (u_{22} - 2u_{02}) + (3u_1 - t_{s1}) (u_{20} - 2u_{00}) + \\ - C_{DD} \{ \bar{d}_1 (d_{22} - 2d_{02}) + d_1 (d_{20} - 2d_{00}) \} / 2 + \\ - C_{TT} \{ \bar{t}_{s1} (t_{s22} - 2t_{s02}) + t_{s1} (t_{s20} - 2t_{s00}) \} / 2 + \\ - C_{TD} \{ \bar{t}_{s1} (d_{22} - 2d_{02}) + t_{s1} (d_{20} - 2d_{00}) + \bar{d}_1 (t_{s22} - 2t_{s02}) + d_1 (t_{s20} - 2t_{s00}) \} / 2 + \\ - \bar{u}_1 (t_{s22} - 2t_{s02}) - u_1 (t_{s20} - 2t_{s00}) + \{ (1 + C_T) (\bar{v}_1 v_{22} + v_1 v_{20}) \} / 2$$

$$t'_{n11} = \{ (v_1 u_1 u_1)^* - (u_1 v_1 t_{s1})^* + 2\bar{v}_1 (t_{s22} + 2t_{s02} - u_{22} - 2u_{02}) + \\ + 2v_1 (t_{s20} + 2t_{s00} - u_{20} - 2u_{00}) + 2v_{22} (\bar{t}_{s1} - \bar{u}_1) + 2v_{20} (t_{s1} - u_1) \} / 4$$

(°) Hereafter $(z_1 z_2 z_3)^*$ denotes the quantity $(\bar{z}_1 z_2 z_3 + z_1 \bar{z}_2 z_3 + z_1 z_2 \bar{z}_3)$ with z_1, z_2, z_3 complex functions of the kind $u_1, v_1, d_1, h_1, t_{s1}, q_{s1}$.

$$\begin{aligned}
q'_{s11} = & R\pi \left\{ -F_o^2 \left[(v_1 h_1 t_{s1})^* + 2(u_1 v_1 h_1)^* - 2(v_1 h_1 q_{s1})^* \right] + (v_1 d_1 t_{s1})^* + \right. \\
& + 2(u_1 v_1 d_1)^* - 2(v_1 d_1 q_{s1})^* - 8\bar{v}_1 (F_o^2 h_{22} - d_{22}) + 4v_{22} (F_o^2 \bar{h}_1 - \bar{d}_1) + \\
& \left. - 8v_1 (F_o^2 h_{20} - d_{20}) + 4v_{20} (F_o^2 h_1 - d_1) \right\} / 16 + \\
& + R^2 \pi^2 \left\{ F_o^4 \left[(t_{s1} h_1 h_1)^* - (q_{s1} h_1 h_1)^* \right] - 2F_o^2 \left[(t_{s1} d_1 h_1)^* - (q_{s1} d_1 h_1)^* \right] + \right. \\
& + (t_{s1} d_1 d_1)^* - (q_{s1} d_1 d_1)^* + 8(F_o^2 \bar{h}_1 - \bar{d}_1)(F_o^2 h_{22} - d_{22}) + \\
& \left. + 8(F_o^2 h_1 - d_1)(F_o^2 h_{20} - d_{20}) \right\} / 32 + \\
& + \left\{ 2(u_1 v_1 v_1)^* - 4\bar{v}_1 v_{22} - 4v_1 v_{20} - 2\Phi_T (u_1 v_1 v_1)^* + (\Phi_T + \Phi_{TT})(t_{s1} v_1 v_1)^* + \right. \\
& \left. + \Phi_{DT} (d_1 v_1 v_1)^* - (q_{s1} v_1 v_1)^* \right\} / 8 + \\
& + \left\{ \Phi_T (\bar{v}_1 v_{22} + v_1 v_{20}) - \Phi_{DD} [\bar{d}_1 (d_{22} - 2d_{02}) + d_1 (d_{20} - 2d_{00})] + \right. \\
& - \Phi_{TT} [\bar{t}_{s1} (t_{s22} - 2t_{s02}) + t_{s1} (t_{s20} - 2t_{s00})] + \\
& - \Phi_{DT} [\bar{t}_{s1} (d_{22} - 2d_{02}) + \bar{d}_1 (t_{s22} - 2t_{s02}) + t_{s1} (d_{20} - 2d_{00}) + \\
& \left. + d_1 (t_{s20} - 2t_{s00}) \right\} / 2 + \\
& + 3 \left\{ \Phi_{DDD} d_1^2 \bar{d}_1 + \Phi_{TTT} t_{s1}^2 \bar{t}_{s1} + \Phi_{DTT} (d_1 t_{s1} t_{s1})^* + \Phi_{DDT} (t_{s1} d_1 d_1)^* \right\} / 8 + \\
& + \Phi_T t'_{s11}
\end{aligned}$$

$$\begin{aligned}
q'_{n11} = R\pi \{ & -3[F_o^2(h_1 t_{s1} t_{s1})^* - (d_1 t_{s1} t_{s1})^*] - 30[F_o^2(h_1 v_1 v_1)^* - (d_1 v_1 v_1)^*] + \\
& + 4[F_o^2(h_1 t_{s1} q_{s1})^* - (d_1 t_{s1} q_{s1})^*] + \\
& + 8(t_{s22} + 2t_{s02} - 2q_{s22} - 4q_{s02})(F_o^2 \bar{h}_1 - \bar{d}_1) + \\
& + 8(t_{s20} + 2t_{s00} - 2q_{s20} - 4q_{s00})(F_o^2 h_1 - d_1) + \\
& + 16(2q_{s1} - t_{s1})(F_o^2 h_{20} - d_{20}) + 16(2\bar{q}_{s1} - \bar{t}_{s1})(F_o^2 h_{22} - d_{22}) \} / 64 + \\
& + 9R^2 \pi^2 \{ F_o^4 (v_1 h_1 h_1)^* + (v_1 d_1 d_1)^* - 2F_o^2 (v_1 d_1 h_1)^* \} / 32 + \\
& - 9R^3 \pi^3 \{ F_o^6 h_1^2 \bar{h}_1 - F_o^4 (d_1 h_1 h_1)^* + F_o^2 (h_1 d_1 d_1)^* - d_1^2 \bar{d}_1 \} / 64 + \\
& + \{ (v_1 u_1 u_1)^* - (u_1 v_1 q_{s1})^* \} / 4 + \\
& - \{ (\bar{u}_1 - \bar{q}_{s1}) v_{22} + (u_1 - q_{s1}) v_{20} + v_1 (u_{20} + 2u_{00} - q_{s20} - 2q_{s00}) + \\
& + \bar{v}_1 (u_{22} + 2u_{02} - q_{s22} - 2q_{s02}) \} / 2
\end{aligned}$$

where

$$C_{DDD} = \frac{1}{C_o} \frac{\partial^3 C}{\partial D^3}$$

$$C_{TTT} = \frac{\vartheta_o^3}{C_o} \frac{\partial^3 C}{\partial \vartheta^3}$$

$$C_{DDT} = \frac{\vartheta_o}{C_o} \frac{\partial^3 C}{\partial D^2 \partial \vartheta}$$

$$C_{DTT} = \frac{\vartheta_o^2}{C_o} \frac{\partial^3 C}{\partial D \partial \vartheta^2}$$

$$\Phi_{DDD} = \frac{1}{\Phi_0} \frac{\partial^3 \Phi}{\partial D^3}$$

$$\Phi_{TTT} = \frac{\psi_0^3}{\Phi_0} \frac{\partial^3 \Phi}{\partial \psi^3}$$

$$\Phi_{DDT} = \frac{\psi_0}{\Phi_0} \frac{\partial^3 \Phi}{\partial D^2 \partial \psi}$$

$$\Phi_{DTT} = \frac{\psi_0^2}{\Phi_0} \frac{\partial^3 \Phi}{\partial D \partial \psi^2}$$

- Term proportional to A in eqn. (48)_b

$$Q_{n11} = \left\{ R\pi (F_0^2 h_1 - d_1) / 2 \right\}$$

Appendix ^C
~~3~~

Coefficients of eqns (50) :

$$\begin{aligned}
 p_1 = & \frac{1}{4} \pi (-\bar{u}_1 v_{22} - u_1 v_{20} + 2\bar{v}_1 u_{22} + 2v_1 u_{20}) \frac{1}{k} (i) \lambda \{ \bar{u}_1 (u_{22} - 2u_{02}) + u_1 (u_{20} - 2u_{00}) \} \\
 & - \beta_c \frac{3}{4} \left[(t_{s1} d_1 d_1)^* - 3d_1^2 \bar{d}_1 \right] + \frac{1}{2} \bar{t}_{s1} (d_{22} - 2d_{02}) + \frac{1}{2} t_{s1} (d_{20} - 2d_{00}) \\
 & + \bar{d}_1 (2d_{02} - d_{22} - t_{s02} + t_{s22}) + d_1 (2d_{00} - d_{20} - t_{s00} + t_{s20}) + t'_{s11} \} ,
 \end{aligned}$$

$$p_2 = \beta_c (d_1 - t_{s1}) - (i) \lambda_1 (u_1 + h_1) ,$$

$$\begin{aligned}
 p_3 = & \frac{1}{4} \pi (\bar{v}_1 v_{22} + v_1 v_{20}) \frac{1}{k} (i) \lambda \{ 2\bar{u}_1 v_{22} - \bar{v}_1 (u_{22} + 2u_{02}) + v_1 (u_{20} + 2u_{00}) \} \\
 & - \beta_c \left\{ \frac{1}{4} [(u_1 v_1 d_1)^* - (v_1 d_1 t_{s1})^* + (v_1 d_1 d_1)^*] \right. \\
 & \left. - \frac{1}{k} [\bar{d}_1 v_{22} + d_1 v_{20} + \bar{v}_1 (d_{22} + 2d_{02}) + v_1 (d_{20} + 2d_{00})] + t'_{n11} \right\} ,
 \end{aligned}$$

$$p_4 = - (\beta_c + (i) \lambda_1) v_1 ,$$

$$\begin{aligned}
 p_5 = & \frac{1}{4} \pi \{ \bar{d}_1 v_{22} + d_1 v_{20} + \bar{v}_1 (d_{22} + 2d_{02}) + v_1 (d_{20} + 2d_{00}) \} \\
 & + (i) \lambda \{ \bar{d}_1 (u_{22} - 2u_{02}) + d_1 (u_{20} - 2u_{00}) + \bar{u}_1 (d_{22} - 2d_{02}) + u_1 (d_{20} - 2d_{00}) \} ,
 \end{aligned}$$

$$p_6 = -\textcircled{i} \lambda_1 (u_1 + d_1),$$

$$p_7 = Q_0 \Phi_0 \left(\frac{1}{2} \pi q'_{n11} \cancel{\text{}} - \textcircled{i} \lambda_{\textcircled{c}} q'_{s11} \right),$$

$$p_8 = Q_0 \Phi_0 \left(\frac{1}{2} \pi Q_{n11} \cancel{\text{}} - \textcircled{i} \lambda_{1f_1} u_1 - \textcircled{i} \lambda_{1f_2} d_1 \right),$$

$$p_9 = d_1 - F_0^2 h_1 \textcircled{c}$$