

$$\begin{aligned}
j_{1, out, x, R} - j_{1, inc, x, R} &= -\frac{896 D_0 j_{1, out, x, R}}{25 Deltax} - \frac{896 D_0 j_{1, inc, x, R}}{25 Deltax} - \frac{128 D_0 j_{3, out, x, R}}{5 Deltax} - \frac{128 D_0 j_{3, inc, x, R}}{5 Deltax} \\
&\quad - \frac{224 D_0 j_{1, out, x, L}}{25 Deltax} - \frac{224 D_0 j_{1, inc, x, L}}{25 Deltax} - \frac{32 D_0 j_{3, out, x, L}}{5 Deltax} - \frac{32 D_0 j_{3, inc, x, L}}{5 Deltax} + \frac{20 D_0 \bar{\Phi}_0}{Deltax} \\
&\quad + \frac{60 D_0 \bar{\Phi}_{0, x, 1}}{Deltax} + \frac{140 D_0 \bar{\Phi}_{0, x, 2}}{Deltax} \\
j_{1, out, x, L} - j_{1, inc, x, L} &= -\frac{224 D_0 j_{1, out, x, R}}{25 Deltax} - \frac{224 D_0 j_{1, inc, x, R}}{25 Deltax} - \frac{32 D_0 j_{3, out, x, R}}{5 Deltax} - \frac{32 D_0 j_{3, inc, x, R}}{5 Deltax} \\
&\quad - \frac{896 D_0 j_{1, out, x, L}}{25 Deltax} - \frac{896 D_0 j_{1, inc, x, L}}{25 Deltax} - \frac{128 D_0 j_{3, out, x, L}}{5 Deltax} - \frac{128 D_0 j_{3, inc, x, L}}{5 Deltax} + \frac{20 D_0 \bar{\Phi}_0}{Deltax} \\
&\quad - \frac{60 D_0 \bar{\Phi}_{0, x, 1}}{Deltax} + \frac{140 D_0 \bar{\Phi}_{0, x, 2}}{Deltax} \\
j_{3, out, x, R} - j_{3, inc, x, R} &= -\frac{368 D_2 j_{1, out, x, R}}{25 Deltax} - \frac{368 D_2 j_{1, inc, x, R}}{25 Deltax} - \frac{472 D_2 j_{3, out, x, R}}{15 Deltax} - \frac{472 D_2 j_{3, inc, x, R}}{15 Deltax} \\
&\quad + \frac{208 D_2 j_{1, out, x, L}}{25 Deltax} + \frac{208 D_2 j_{1, inc, x, L}}{25 Deltax} - \frac{56 D_2 j_{3, out, x, L}}{5 Deltax} - \frac{56 D_2 j_{3, inc, x, L}}{5 Deltax} + \frac{20 D_2 \bar{\phi}_2}{Deltax} \\
&\quad + \frac{60 D_2 \bar{\phi}_{2, x, 1}}{Deltax} + \frac{140 D_2 \bar{\phi}_{2, x, 2}}{Deltax} \\
j_{3, out, x, L} - j_{3, inc, x, L} &= \frac{208 D_2 j_{1, out, x, R}}{25 Deltax} + \frac{208 D_2 j_{1, inc, x, R}}{25 Deltax} - \frac{56 D_2 j_{3, out, x, R}}{5 Deltax} - \frac{56 D_2 j_{3, inc, x, R}}{5 Deltax} \\
&\quad - \frac{368 D_2 j_{1, out, x, L}}{25 Deltax} - \frac{368 D_2 j_{1, inc, x, L}}{25 Deltax} - \frac{472 D_2 j_{3, out, x, L}}{15 Deltax} - \frac{472 D_2 j_{3, inc, x, L}}{15 Deltax} + \frac{20 D_2 \bar{\phi}_2}{Deltax} \\
&\quad - \frac{60 D_2 \bar{\phi}_{2, x, 1}}{Deltax} + \frac{140 D_2 \bar{\phi}_{2, x, 2}}{Deltax} \\
\bar{\Phi}_0 &= 2 \bar{\phi}_2 + \frac{S_0}{\Sigma_{rem, 0}} - \frac{j_{1, out, x, R}}{\Sigma_{rem, 0} Deltax} + \frac{j_{1, inc, x, R}}{\Sigma_{rem, 0} Deltax} - \frac{j_{1, out, x, L}}{\Sigma_{rem, 0} Deltax} + \frac{j_{1, inc, x, L}}{\Sigma_{rem, 0} Deltax} \\
&\quad - \frac{j_{1, out, y, R}}{\Sigma_{rem, 0} Deltay} + \frac{j_{1, inc, y, R}}{\Sigma_{rem, 0} Deltay} - \frac{j_{1, out, y, L}}{\Sigma_{rem, 0} Deltay} + \frac{j_{1, inc, y, L}}{\Sigma_{rem, 0} Deltay} - \frac{j_{1, out, z, R}}{\Sigma_{rem, 0} Deltaz} \\
&\quad + \frac{j_{1, inc, z, R}}{\Sigma_{rem, 0} Deltaz} - \frac{j_{1, out, z, L}}{\Sigma_{rem, 0} Deltaz} + \frac{j_{1, inc, z, L}}{\Sigma_{rem, 0} Deltaz} \\
\bar{\Phi}[0, x, 1] &= -\frac{8 D_0 j_{3, out, x, R}}{5 \Sigma_{rem, 0} Deltax^2} + \frac{8 D_0 j_{3, out, x, L}}{5 \Sigma_{rem, 0} Deltax^2} - \frac{8 D_0 j_{3, inc, x, R}}{5 \Sigma_{rem, 0} Deltax^2} + \frac{8 D_0 j_{3, inc, x, L}}{5 \Sigma_{rem, 0} Deltax^2} \\
&\quad - \frac{\left(\frac{1}{2 Deltax} + \frac{56 D_0}{25 Deltax^2} \right) j_{1, out, x, R}}{\Sigma_{rem, 0}} - \frac{\left(-\frac{1}{2 Deltax} - \frac{56 D_0}{25 Deltax^2} \right) j_{1, out, x, L}}{\Sigma_{rem, 0}}
\end{aligned}$$

$$\begin{aligned}
& - \frac{\left(-\frac{1}{2 \text{Deltax}} + \frac{56 \text{D}_0}{25 \text{Deltax}^2} \right) j_{1, \text{inc}, x, R}}{\Sigma_{\text{rem}, 0}} - \frac{\left(\frac{1}{2 \text{Deltax}} - \frac{56 \text{D}_0}{25 \text{Deltax}^2} \right) j_{1, \text{inc}, x, L}}{\Sigma_{\text{rem}, 0}} + 2 \bar{\phi}_{2, x, 1} \\
& - \frac{L_{1, xz, 1}}{\Sigma_{\text{rem}, 0} \text{Deltaz}} - \frac{L_{1, xy, 1}}{\Sigma_{\text{rem}, 0} \text{Deltay}} + \frac{S_{0, x, 1}}{\Sigma_{\text{rem}, 0}} \\
\bar{\Phi}[0, x, 2] = & - \frac{24 \text{D}_0 j_{3, \text{out}, x, L}}{5 \Sigma_{\text{rem}, 0} \text{Deltax}^2} - \frac{24 \text{D}_0 j_{3, \text{inc}, x, R}}{5 \Sigma_{\text{rem}, 0} \text{Deltax}^2} - \frac{24 \text{D}_0 j_{3, \text{inc}, x, L}}{5 \Sigma_{\text{rem}, 0} \text{Deltax}^2} \\
& - \frac{\left(\frac{1}{2 \text{Deltax}} + \frac{168 \text{D}_0}{25 \text{Deltax}^2} \right) j_{1, \text{out}, x, R}}{\Sigma_{\text{rem}, 0}} - \frac{\left(\frac{1}{2 \text{Deltax}} + \frac{168 \text{D}_0}{25 \text{Deltax}^2} \right) j_{1, \text{out}, x, L}}{\Sigma_{\text{rem}, 0}} \\
& - \frac{\left(-\frac{1}{2 \text{Deltax}} + \frac{168 \text{D}_0}{25 \text{Deltax}^2} \right) j_{1, \text{inc}, x, R}}{\Sigma_{\text{rem}, 0}} - \frac{\left(-\frac{1}{2 \text{Deltax}} + \frac{168 \text{D}_0}{25 \text{Deltax}^2} \right) j_{1, \text{inc}, x, L}}{\Sigma_{\text{rem}, 0}} + 2 \bar{\phi}_{2, x, 2} \\
& + \frac{6 \text{D}_0 \bar{\Phi}_0}{\Sigma_{\text{rem}, 0} \text{Deltax}^2} + \frac{S_{0, x, 2}}{\Sigma_{\text{rem}, 0}} - \frac{L_{1, xz, 2}}{\Sigma_{\text{rem}, 0} \text{Deltaz}} - \frac{L_{1, xy, 2}}{\Sigma_{\text{rem}, 0} \text{Deltay}} - \frac{24 \text{D}_0 j_{3, \text{out}, x, R}}{5 \Sigma_{\text{rem}, 0} \text{Deltax}^2} \\
\bar{\phi}[2] = & \frac{5 j_{3, \text{out}, x, R}}{(-5 \alpha + 4 \Sigma_{\text{rem}, 0}) \text{Deltax}} - \frac{5 j_{3, \text{inc}, x, R}}{(-5 \alpha + 4 \Sigma_{\text{rem}, 0}) \text{Deltax}} + \frac{5 j_{3, \text{out}, x, L}}{(-5 \alpha + 4 \Sigma_{\text{rem}, 0}) \text{Deltax}} \\
& - \frac{5 j_{3, \text{inc}, x, L}}{(-5 \alpha + 4 \Sigma_{\text{rem}, 0}) \text{Deltax}} + \frac{5 j_{3, \text{out}, y, R}}{(-5 \alpha + 4 \Sigma_{\text{rem}, 0}) \text{Deltay}} - \frac{5 j_{3, \text{inc}, y, R}}{(-5 \alpha + 4 \Sigma_{\text{rem}, 0}) \text{Deltay}} \\
& + \frac{5 j_{3, \text{out}, y, L}}{(-5 \alpha + 4 \Sigma_{\text{rem}, 0}) \text{Deltay}} - \frac{5 j_{3, \text{inc}, y, L}}{(-5 \alpha + 4 \Sigma_{\text{rem}, 0}) \text{Deltay}} + \frac{5 j_{3, \text{out}, z, R}}{(-5 \alpha + 4 \Sigma_{\text{rem}, 0}) \text{Deltaz}} \\
& - \frac{5 j_{3, \text{inc}, z, R}}{(-5 \alpha + 4 \Sigma_{\text{rem}, 0}) \text{Deltaz}} + \frac{5 j_{3, \text{out}, z, L}}{(-5 \alpha + 4 \Sigma_{\text{rem}, 0}) \text{Deltaz}} - \frac{5 j_{3, \text{inc}, z, L}}{(-5 \alpha + 4 \Sigma_{\text{rem}, 0}) \text{Deltaz}} \\
& + \frac{2 j_{1, \text{out}, x, R}}{(-5 \alpha + 4 \Sigma_{\text{rem}, 0}) \text{Deltax}} - \frac{2 j_{1, \text{inc}, x, R}}{(-5 \alpha + 4 \Sigma_{\text{rem}, 0}) \text{Deltax}} + \frac{2 j_{1, \text{out}, x, L}}{(-5 \alpha + 4 \Sigma_{\text{rem}, 0}) \text{Deltax}} \\
& - \frac{2 j_{1, \text{inc}, x, L}}{(-5 \alpha + 4 \Sigma_{\text{rem}, 0}) \text{Deltax}} + \frac{2 j_{1, \text{out}, y, R}}{(-5 \alpha + 4 \Sigma_{\text{rem}, 0}) \text{Deltay}} - \frac{2 j_{1, \text{inc}, y, R}}{(-5 \alpha + 4 \Sigma_{\text{rem}, 0}) \text{Deltay}} \\
& + \frac{2 j_{1, \text{out}, y, L}}{(-5 \alpha + 4 \Sigma_{\text{rem}, 0}) \text{Deltay}} - \frac{2 j_{1, \text{inc}, y, L}}{(-5 \alpha + 4 \Sigma_{\text{rem}, 0}) \text{Deltay}} + \frac{2 j_{1, \text{out}, z, R}}{(-5 \alpha + 4 \Sigma_{\text{rem}, 0}) \text{Deltaz}} \\
& - \frac{2 j_{1, \text{inc}, z, R}}{(-5 \alpha + 4 \Sigma_{\text{rem}, 0}) \text{Deltaz}} + \frac{2 j_{1, \text{out}, z, L}}{(-5 \alpha + 4 \Sigma_{\text{rem}, 0}) \text{Deltaz}} - \frac{2 j_{1, \text{inc}, z, L}}{(-5 \alpha + 4 \Sigma_{\text{rem}, 0}) \text{Deltaz}} \\
\bar{\phi}[2, x, 1] = & - \frac{\left(\frac{1}{2 \text{Deltax}} + \frac{32 \text{D}_2}{15 \text{Deltax}^2} \right) j_{3, \text{out}, x, R}}{\alpha} - \frac{\left(-\frac{1}{2 \text{Deltax}} - \frac{32 \text{D}_2}{15 \text{Deltax}^2} \right) j_{3, \text{out}, x, L}}{\alpha}
\end{aligned}$$

$$\begin{aligned}
& - \frac{\left(-\frac{1}{2 \text{Deltax}} + \frac{32 \text{D}_2}{15 \text{Deltax}^2} \right) j_{3, inc, x, R}}{\alpha} - \frac{\left(\frac{1}{2 \text{Deltax}} - \frac{32 \text{D}_2}{15 \text{Deltax}^2} \right) j_{3, inc, x, L}}{\alpha} \\
& - \frac{8 \text{D}_2 j_{1, out, x, R}}{25 \alpha \text{Deltax}^2} + \frac{8 \text{D}_2 j_{1, out, x, L}}{25 \alpha \text{Deltax}^2} - \frac{8 \text{D}_2 j_{1, inc, x, R}}{25 \alpha \text{Deltax}^2} + \frac{8 \text{D}_2 j_{1, inc, x, L}}{25 \alpha \text{Deltax}^2} + \frac{2 \Sigma_{rem, 0} \bar{\Phi}_{0, x, 1}}{5 \alpha} \\
& - \frac{2 S_{0, x, 1}}{5 \alpha} - \frac{L_{3, xz, 1}}{\alpha \text{Deltaz}} - \frac{L_{3, xy, 1}}{\alpha \text{Deltay}} \\
\phi[2, x, 2] = & - \frac{\left(\frac{1}{2 \text{Deltax}} + \frac{32 \text{D}_2}{5 \text{Deltax}^2} \right) j_{3, out, x, R}}{\alpha} - \frac{\left(\frac{1}{2 \text{Deltax}} + \frac{32 \text{D}_2}{5 \text{Deltax}^2} \right) j_{3, out, x, L}}{\alpha} \\
& - \frac{\left(-\frac{1}{2 \text{Deltax}} + \frac{32 \text{D}_2}{5 \text{Deltax}^2} \right) j_{3, inc, x, R}}{\alpha} - \frac{\left(-\frac{1}{2 \text{Deltax}} + \frac{32 \text{D}_2}{5 \text{Deltax}^2} \right) j_{3, inc, x, L}}{\alpha} \\
& - \frac{24 \text{D}_2 j_{1, out, x, R}}{25 \alpha \text{Deltax}^2} - \frac{24 \text{D}_2 j_{1, out, x, L}}{25 \alpha \text{Deltax}^2} - \frac{24 \text{D}_2 j_{1, inc, x, R}}{25 \alpha \text{Deltax}^2} - \frac{24 \text{D}_2 j_{1, inc, x, L}}{25 \alpha \text{Deltax}^2} + \frac{6 \text{D}_2 \bar{\phi}_2}{\alpha \text{Deltax}^2} \\
& + \frac{2 \Sigma_{rem, 0} \bar{\Phi}_{0, x, 2}}{5 \alpha} - \frac{2 S_{0, x, 2}}{5 \alpha} - \frac{L_{3, xz, 2}}{\alpha \text{Deltaz}} - \frac{L_{3, xy, 2}}{\alpha \text{Deltay}}
\end{aligned}$$