

$$\begin{aligned}
\phi_{2,x,R} = & \frac{1}{7 \text{Deltax}^2 \Sigma_t^2} \left( -14 \text{Deltax}^2 \Sigma_t^2 \left( \frac{8 j_{1,out,x,R}}{15} + \frac{8 j_{1,inc,x,R}}{15} - \frac{8 \hat{j}_{3,out,x,R}}{15} - \frac{8 \hat{j}_{3,inc,x,R}}{15} \right) \right. \\
& + 16 j_{1,out,x,L} + 16 j_{1,inc,x,L} + 16 \hat{j}_{3,out,x,L} + 16 \hat{j}_{3,inc,x,L} + 1328 j_{1,out,x,R} + 1328 j_{1,inc,x,R} \\
& + 1328 \hat{j}_{3,out,x,R} + 1328 \hat{j}_{3,inc,x,R} + 498 \phi_{2,x,L} + 1482 \phi_{2,x,R} \\
& - \frac{1}{-5 \alpha + 4 \Sigma_{rem,0}} \left( 1980 \left( \frac{5 (J_{3,x,R} + J_{3,x,L})}{\text{Deltax}} + \frac{5 (J_{3,y,R} + J_{3,y,L})}{\text{Deltay}} + \frac{5 (J_{3,z,R} + J_{3,z,L})}{\text{Deltaz}} \right. \right. \\
& + \frac{2 (j_{1,out,x,R} - j_{1,inc,x,R} + j_{1,out,x,L} - j_{1,inc,x,L})}{\text{Deltax}} \\
& + \frac{2 (j_{1,out,y,R} - j_{1,inc,y,R} + j_{1,out,y,L} - j_{1,inc,y,L})}{\text{Deltay}} \\
& + \left. \left. \frac{2 (j_{1,out,z,R} - j_{1,inc,z,R} + j_{1,out,z,L} - j_{1,inc,z,L})}{\text{Deltaz}} \right) \right) - \frac{1}{\Sigma_{rem,0}} \left( 504 \left( S_0 \right. \right. \\
& - \frac{j_{1,out,x,R} - j_{1,inc,x,R} + j_{1,out,x,L} - j_{1,inc,x,L}}{\text{Deltax}} - \frac{j_{1,out,y,R} - j_{1,inc,y,R} + j_{1,out,y,L} - j_{1,inc,y,L}}{\text{Deltay}} \\
& - \left. \left. \frac{j_{1,out,z,R} - j_{1,inc,z,R} + j_{1,out,z,L} - j_{1,inc,z,L}}{\text{Deltaz}} \right) \right) - 1008 \bar{\Phi}_{0,x,1} - 4704 \bar{\Phi}_{0,x,2} - 1944 \bar{\phi}_{2,x,1} \\
& \left. - 9072 \bar{\phi}_{2,x,2} \right) \\
\phi_{2,x,L} = & \frac{1}{7 \text{Deltax}^2 \Sigma_t^2} \left( -14 \text{Deltax}^2 \Sigma_t^2 \left( \frac{8 j_{1,out,x,L}}{15} + \frac{8 j_{1,inc,x,L}}{15} - \frac{8 \hat{j}_{3,out,x,L}}{15} - \frac{8 \hat{j}_{3,inc,x,L}}{15} \right) \right. \\
& + 1328 j_{1,out,x,L} + 1328 j_{1,inc,x,L} + 1328 \hat{j}_{3,out,x,L} + 1328 \hat{j}_{3,inc,x,L} + 16 j_{1,out,x,R} + 16 j_{1,inc,x,R} \\
& + 16 \hat{j}_{3,out,x,R} + 16 \hat{j}_{3,inc,x,R} + 1482 \phi_{2,x,L} + 498 \phi_{2,x,R} \\
& - \frac{1}{-5 \alpha + 4 \Sigma_{rem,0}} \left( 1980 \left( \frac{5 (J_{3,x,R} + J_{3,x,L})}{\text{Deltax}} + \frac{5 (J_{3,y,R} + J_{3,y,L})}{\text{Deltay}} + \frac{5 (J_{3,z,R} + J_{3,z,L})}{\text{Deltaz}} \right) \right.
\end{aligned}$$

$$\begin{aligned}
& + \frac{2 \left( j_{1, out, x, R} - j_{1, inc, x, R} + j_{1, out, x, L} - j_{1, inc, x, L} \right)}{Deltax} \\
& + \frac{2 \left( j_{1, out, y, R} - j_{1, inc, y, R} + j_{1, out, y, L} - j_{1, inc, y, L} \right)}{Deltay} \\
& + \frac{2 \left( j_{1, out, z, R} - j_{1, inc, z, R} + j_{1, out, z, L} - j_{1, inc, z, L} \right)}{Deltaz} \Bigg) - \frac{1}{\Sigma_{rem, 0}} \left( 504 \left( S_0 \right. \right. \\
& - \frac{j_{1, out, x, R} - j_{1, inc, x, R} + j_{1, out, x, L} - j_{1, inc, x, L}}{Deltax} - \frac{j_{1, out, y, R} - j_{1, inc, y, R} + j_{1, out, y, L} - j_{1, inc, y, L}}{Deltay} \\
& - \left. \left. \frac{j_{1, out, z, R} - j_{1, inc, z, R} + j_{1, out, z, L} - j_{1, inc, z, L}}{Deltaz} \right) \right) + 1008 \bar{\Phi}_{0, x, 1} - 4704 \bar{\Phi}_{0, x, 2} + 1944 \bar{\phi}_{2, x, 1} \\
& - 9072 \bar{\phi}_{2, x, 2} \Bigg)
\end{aligned}$$

$$\begin{aligned}
\hat{j}_{3, out, x, R} - \hat{j}_{3, inc, x, R} = & - \frac{1}{4900 Deltax^3 \Sigma_t^3} \left( 9 \left( -210 \left( 21 \phi_{2, x, R} - \phi_{2, x, L} \right. \right. \right. \\
& - \frac{1}{-5 \alpha + 4 \Sigma_{rem, 0}} \left( 20 \left( \frac{5 \left( J_{3, x, R} + J_{3, x, L} \right)}{Deltax} + \frac{5 \left( J_{3, y, R} + J_{3, y, L} \right)}{Deltay} + \frac{5 \left( J_{3, z, R} + J_{3, z, L} \right)}{Deltaz} \right. \right. \\
& + \frac{2 \left( j_{1, out, x, R} - j_{1, inc, x, R} + j_{1, out, x, L} - j_{1, inc, x, L} \right)}{Deltax} \\
& + \frac{2 \left( j_{1, out, y, R} - j_{1, inc, y, R} + j_{1, out, y, L} - j_{1, inc, y, L} \right)}{Deltay} \\
& + \left. \left. \frac{2 \left( j_{1, out, z, R} - j_{1, inc, z, R} + j_{1, out, z, L} - j_{1, inc, z, L} \right)}{Deltaz} \right) \right) + \frac{40 j_{1, out, x, R}}{3} + \frac{40 j_{1, inc, x, R}}{3} \\
& + \frac{40 \hat{j}_{3, out, x, R}}{3} + \frac{40 \hat{j}_{3, inc, x, R}}{3} - \frac{40 j_{1, out, x, L}}{3} - \frac{40 j_{1, inc, x, L}}{3} - \frac{40 \hat{j}_{3, out, x, L}}{3} - \frac{40 \hat{j}_{3, inc, x, L}}{3} \\
& - 60 \bar{\phi}_{2, x, 1} - 140 \bar{\phi}_{2, x, 2} \Bigg) Deltax^2 \Sigma_t^2 + \frac{222400 j_{1, out, x, R}}{3} + \frac{222400 j_{1, inc, x, R}}{3} \\
& + \frac{222400 \hat{j}_{3, out, x, R}}{3} + \frac{222400 \hat{j}_{3, inc, x, R}}{3} + 93400 \phi_{2, x, R} + 30400 j_{1, out, x, L} + 30400 j_{1, inc, x, L}
\end{aligned}$$

$$\begin{aligned}
& + 30400 \hat{j}_{3, out, x, L} + 30400 \hat{j}_{3, inc, x, L} + 60600 \phi_{2, x, L} - 33600 \bar{\Phi}_{0, x, 1} \\
& - \frac{1}{-5 \alpha + 4 \Sigma_{rem, 0}} \left( 154000 \left( \frac{5 (J_{3, x, R} + J_{3, x, L})}{Deltax} + \frac{5 (J_{3, y, R} + J_{3, y, L})}{Deltay} \right. \right. \\
& + \frac{5 (J_{3, z, R} + J_{3, z, L})}{Deltaz} + \frac{2 (j_{1, out, x, R} - j_{1, inc, x, R} + j_{1, out, x, L} - j_{1, inc, x, L})}{Deltax} \\
& + \frac{2 (j_{1, out, y, R} - j_{1, inc, y, R} + j_{1, out, y, L} - j_{1, inc, y, L})}{Deltay} \\
& + \left. \left. \frac{2 (j_{1, out, z, R} - j_{1, inc, z, R} + j_{1, out, z, L} - j_{1, inc, z, L})}{Deltaz} \right) \right) - \frac{1}{\Sigma_{rem, 0}} \left( 39200 \left( S_0 \right. \right. \\
& - \frac{j_{1, out, x, R} - j_{1, inc, x, R} + j_{1, out, x, L} - j_{1, inc, x, L}}{Deltax} - \frac{j_{1, out, y, R} - j_{1, inc, y, R} + j_{1, out, y, L} - j_{1, inc, y, L}}{Deltay} \\
& - \left. \left. \frac{j_{1, out, z, R} - j_{1, inc, z, R} + j_{1, out, z, L} - j_{1, inc, z, L}}{Deltaz} \right) \right) - 392000 \bar{\Phi}_{0, x, 2} - 64800 \bar{\phi}_{2, x, 1} \\
& - 756000 \bar{\phi}_{2, x, 2} \left. \right) - \frac{2 (j_{1, out, x, R} - j_{1, inc, x, R})}{5 \Sigma_t} \\
& \hat{j}_{3, out, x, L} - \hat{j}_{3, inc, x, L} = - \frac{1}{4900 Deltax^3 \Sigma_t^3} \left( 9 \left( -210 \left( \phi_{2, x, R} - 21 \phi_{2, x, L} \right. \right. \right. \\
& + \frac{1}{-5 \alpha + 4 \Sigma_{rem, 0}} \left( 20 \left( \frac{5 (J_{3, x, R} + J_{3, x, L})}{Deltax} + \frac{5 (J_{3, y, R} + J_{3, y, L})}{Deltay} + \frac{5 (J_{3, z, R} + J_{3, z, L})}{Deltaz} \right. \right. \\
& + \frac{2 (j_{1, out, x, R} - j_{1, inc, x, R} + j_{1, out, x, L} - j_{1, inc, x, L})}{Deltax} \\
& + \frac{2 (j_{1, out, y, R} - j_{1, inc, y, R} + j_{1, out, y, L} - j_{1, inc, y, L})}{Deltay} \\
& + \left. \left. \frac{2 (j_{1, out, z, R} - j_{1, inc, z, R} + j_{1, out, z, L} - j_{1, inc, z, L})}{Deltaz} \right) \right) + \frac{40 j_{1, out, x, R}}{3} + \frac{40 j_{1, inc, x, R}}{3}
\end{aligned}$$

$$\begin{aligned}
& + \frac{40 \hat{j}_{3, out, x, R}}{3} + \frac{40 \hat{j}_{3, inc, x, R}}{3} - \frac{40 j_{1, out, x, L}}{3} - \frac{40 j_{1, inc, x, L}}{3} - \frac{40 \hat{j}_{3, out, x, L}}{3} - \frac{40 \hat{j}_{3, inc, x, L}}{3} \\
& - 60 \bar{\phi}_{2, x, 1} + 140 \bar{\phi}_{2, x, 2} \Big) Deltax^2 \Sigma_t^2 - 30400 j_{1, out, x, R} - 30400 j_{1, inc, x, R} - 30400 \hat{j}_{3, out, x, R} \\
& - 30400 \hat{j}_{3, inc, x, R} - 60600 \phi_{2, x, R} - \frac{222400 j_{1, out, x, L}}{3} - \frac{222400 j_{1, inc, x, L}}{3} - \frac{222400 \hat{j}_{3, out, x, L}}{3} \\
& - \frac{222400 \hat{j}_{3, inc, x, L}}{3} - 93400 \phi_{2, x, L} - 33600 \bar{\Phi}_{0, x, 1} \\
& + \frac{1}{-5 \alpha + 4 \Sigma_{rem, 0}} \left( 154000 \left( \frac{5 (J_{3, x, R} + J_{3, x, L})}{Deltax} + \frac{5 (J_{3, y, R} + J_{3, y, L})}{Deltay} \right. \right. \\
& + \frac{5 (J_{3, z, R} + J_{3, z, L})}{Deltaz} + \frac{2 (j_{1, out, x, R} - j_{1, inc, x, R} + j_{1, out, x, L} - j_{1, inc, x, L})}{Deltax} \\
& + \frac{2 (j_{1, out, y, R} - j_{1, inc, y, R} + j_{1, out, y, L} - j_{1, inc, y, L})}{Deltay} \\
& + \frac{2 (j_{1, out, z, R} - j_{1, inc, z, R} + j_{1, out, z, L} - j_{1, inc, z, L})}{Deltaz} \Big) \Big) + \frac{1}{\Sigma_{rem, 0}} \left( 39200 \left( S_0 \right. \right. \\
& - \frac{j_{1, out, x, R} - j_{1, inc, x, R} + j_{1, out, x, L} - j_{1, inc, x, L}}{Deltax} - \frac{j_{1, out, y, R} - j_{1, inc, y, R} + j_{1, out, y, L} - j_{1, inc, y, L}}{Deltay} \\
& - \frac{j_{1, out, z, R} - j_{1, inc, z, R} + j_{1, out, z, L} - j_{1, inc, z, L}}{Deltaz} \Big) \Big) + 392000 \bar{\Phi}_{0, x, 2} - 64800 \bar{\phi}_{2, x, 1} \\
& + 756000 \bar{\phi}_{2, x, 2} \Big) \Big) - \frac{2 (j_{1, out, x, L} - j_{1, inc, x, L})}{5 \Sigma_t} \\
j_{1, out, x, R} - j_{1, inc, x, R} = & \frac{1}{Deltax} \left( \frac{128 j_{1, out, x, R}}{3} + \frac{128 j_{1, inc, x, R}}{3} + \frac{128 \hat{j}_{3, out, x, R}}{3} + \frac{128 \hat{j}_{3, inc, x, R}}{3} \right. \\
& + 32 \phi_{2, x, R} + \frac{32 j_{1, out, x, L}}{3} + \frac{32 j_{1, inc, x, L}}{3} + \frac{32 \hat{j}_{3, out, x, L}}{3} + \frac{32 \hat{j}_{3, inc, x, L}}{3} + 8 \phi_{2, x, L} \\
& - \frac{1}{-5 \alpha + 4 \Sigma_{rem, 0}} \left( 40 \left( \frac{5 (J_{3, x, R} + J_{3, x, L})}{Deltax} + \frac{5 (J_{3, y, R} + J_{3, y, L})}{Deltay} + \frac{5 (J_{3, z, R} + J_{3, z, L})}{Deltaz} \right. \right.
\end{aligned}$$

$$\begin{aligned}
& + \frac{2 (j_{1, out, x, R} - j_{1, inc, x, R} + j_{1, out, x, L} - j_{1, inc, x, L})}{Deltax} \\
& + \frac{2 (j_{1, out, y, R} - j_{1, inc, y, R} + j_{1, out, y, L} - j_{1, inc, y, L})}{Deltay} \\
& + \frac{2 (j_{1, out, z, R} - j_{1, inc, z, R} + j_{1, out, z, L} - j_{1, inc, z, L})}{Deltaz} \Big) \Big) - \frac{1}{\Sigma_{rem, 0}} \Big( 20 \Big( S_0 \\
& - \frac{j_{1, out, x, R} - j_{1, inc, x, R} + j_{1, out, x, L} - j_{1, inc, x, L}}{Deltax} - \frac{j_{1, out, y, R} - j_{1, inc, y, R} + j_{1, out, y, L} - j_{1, inc, y, L}}{Deltay} \\
& - \frac{j_{1, out, z, R} - j_{1, inc, z, R} + j_{1, out, z, L} - j_{1, inc, z, L}}{Deltaz} \Big) \Big) - 60 \bar{\Phi}_{0, x, 1} - 140 \bar{\Phi}_{0, x, 2} \Big) \\
j_{1, out, x, L} - j_{1, inc, x, L} = & \frac{1}{Deltax} \Big( - \frac{32 j_{1, out, x, R}}{3} - \frac{32 j_{1, inc, x, R}}{3} - \frac{32 \hat{j}_{3, out, x, R}}{3} - \frac{32 \hat{j}_{3, inc, x, R}}{3} \\
& - 8 \phi_{2, x, R} - \frac{128 j_{1, out, x, L}}{3} - \frac{128 j_{1, inc, x, L}}{3} - \frac{128 \hat{j}_{3, out, x, L}}{3} - \frac{128 \hat{j}_{3, inc, x, L}}{3} - 32 \phi_{2, x, L} \\
& + \frac{1}{-5 \alpha + 4 \Sigma_{rem, 0}} \Big( 40 \Big( \frac{5 (J_{3, x, R} + J_{3, x, L})}{Deltax} + \frac{5 (J_{3, y, R} + J_{3, y, L})}{Deltay} + \frac{5 (J_{3, z, R} + J_{3, z, L})}{Deltaz} \\
& + \frac{2 (j_{1, out, x, R} - j_{1, inc, x, R} + j_{1, out, x, L} - j_{1, inc, x, L})}{Deltax} \\
& + \frac{2 (j_{1, out, y, R} - j_{1, inc, y, R} + j_{1, out, y, L} - j_{1, inc, y, L})}{Deltay} \\
& + \frac{2 (j_{1, out, z, R} - j_{1, inc, z, R} + j_{1, out, z, L} - j_{1, inc, z, L})}{Deltaz} \Big) \Big) + \frac{1}{\Sigma_{rem, 0}} \Big( 20 \Big( S_0 \\
& - \frac{j_{1, out, x, R} - j_{1, inc, x, R} + j_{1, out, x, L} - j_{1, inc, x, L}}{Deltax} - \frac{j_{1, out, y, R} - j_{1, inc, y, R} + j_{1, out, y, L} - j_{1, inc, y, L}}{Deltay} \\
& - \frac{j_{1, out, z, R} - j_{1, inc, z, R} + j_{1, out, z, L} - j_{1, inc, z, L}}{Deltaz} \Big) \Big) - 60 \bar{\Phi}_{0, x, 1} + 140 \bar{\Phi}_{0, x, 2} \Big) \\
J_{3, x, R} = & \frac{1}{Deltax} \Big( 21 \phi_{2, x, R} - \phi_{2, x, L} - \frac{1}{-5 \alpha + 4 \Sigma_{rem, 0}} \Big( 20 \Big( \frac{5 (J_{3, x, R} + J_{3, x, L})}{Deltax} \\
& + \frac{5 (J_{3, y, R} + J_{3, y, L})}{Deltay} + \frac{5 (J_{3, z, R} + J_{3, z, L})}{Deltaz}
\end{aligned}$$

$$\begin{aligned}
& + \frac{2 \left( j_{1, out, x, R} - j_{1, inc, x, R} + j_{1, out, x, L} - j_{1, inc, x, L} \right)}{Deltax} \\
& + \frac{2 \left( j_{1, out, y, R} - j_{1, inc, y, R} + j_{1, out, y, L} - j_{1, inc, y, L} \right)}{Deltay} \\
& + \frac{2 \left( j_{1, out, z, R} - j_{1, inc, z, R} + j_{1, out, z, L} - j_{1, inc, z, L} \right)}{Deltaz} \Bigg) \Bigg) + \frac{40 j_{1, out, x, R}}{3} + \frac{40 j_{1, inc, x, R}}{3} \\
& + \frac{40 \hat{j}_{3, out, x, R}}{3} + \frac{40 \hat{j}_{3, inc, x, R}}{3} - \frac{40 j_{1, out, x, L}}{3} - \frac{40 j_{1, inc, x, L}}{3} - \frac{40 \hat{j}_{3, out, x, L}}{3} - \frac{40 \hat{j}_{3, inc, x, L}}{3} \\
& - 60 \bar{\phi}_{2, x, 1} - 140 \bar{\phi}_{2, x, 2} \Bigg) \\
J_{3, x, L} = & \frac{1}{Deltax} \left( \phi_{2, x, R} - 21 \phi_{2, x, L} + \frac{1}{-5 \alpha + 4 \Sigma_{rem, 0}} \left( 20 \left( \frac{5 \left( J_{3, x, R} + J_{3, x, L} \right)}{Deltax} \right. \right. \right. \\
& + \frac{5 \left( J_{3, y, R} + J_{3, y, L} \right)}{Deltay} + \frac{5 \left( J_{3, z, R} + J_{3, z, L} \right)}{Deltaz} \\
& + \frac{2 \left( j_{1, out, x, R} - j_{1, inc, x, R} + j_{1, out, x, L} - j_{1, inc, x, L} \right)}{Deltax} \\
& + \frac{2 \left( j_{1, out, y, R} - j_{1, inc, y, R} + j_{1, out, y, L} - j_{1, inc, y, L} \right)}{Deltay} \\
& + \frac{2 \left( j_{1, out, z, R} - j_{1, inc, z, R} + j_{1, out, z, L} - j_{1, inc, z, L} \right)}{Deltaz} \Bigg) \Bigg) + \frac{40 j_{1, out, x, R}}{3} + \frac{40 j_{1, inc, x, R}}{3} \\
& + \frac{40 \hat{j}_{3, out, x, R}}{3} + \frac{40 \hat{j}_{3, inc, x, R}}{3} - \frac{40 j_{1, out, x, L}}{3} - \frac{40 j_{1, inc, x, L}}{3} - \frac{40 \hat{j}_{3, out, x, L}}{3} - \frac{40 \hat{j}_{3, inc, x, L}}{3} \\
& - 60 \bar{\phi}_{2, x, 1} + 140 \bar{\phi}_{2, x, 2} \Bigg)
\end{aligned}$$