

$$\begin{aligned}
& - \frac{2a_{px}a_{\rho x}\pi^2 k p_x \rho_x \cos\left(\frac{a_{\rho x}\pi x}{L}\right) \sin\left(\frac{a_{px}\pi x}{L}\right)}{L^2 R \left[ \rho_0 + \rho_x \sin\left(\frac{a_{\rho x}\pi x}{L}\right) + \rho_y \cos\left(\frac{a_{\rho y}\pi y}{L}\right) + \rho_z \sin\left(\frac{a_{\rho z}\pi z}{L}\right) \right]^2} + \\
& - \frac{2a_{py}a_{\rho y}\pi^2 k p_y \rho_y \sin\left(\frac{a_{\rho y}\pi y}{L}\right) \cos\left(\frac{a_{py}\pi y}{L}\right)}{L^2 R \left[ \rho_0 + \rho_x \sin\left(\frac{a_{\rho x}\pi x}{L}\right) + \rho_y \cos\left(\frac{a_{\rho y}\pi y}{L}\right) + \rho_z \sin\left(\frac{a_{\rho z}\pi z}{L}\right) \right]^2} + \\
& - \frac{2a_{pz}a_{\rho z}\pi^2 k p_z \rho_z \cos\left(\frac{a_{\rho z}\pi z}{L}\right) \sin\left(\frac{a_{pz}\pi z}{L}\right)}{L^2 R \left[ \rho_0 + \rho_x \sin\left(\frac{a_{\rho x}\pi x}{L}\right) + \rho_y \cos\left(\frac{a_{\rho y}\pi y}{L}\right) + \rho_z \sin\left(\frac{a_{\rho z}\pi z}{L}\right) \right]^2} + \\
& + \frac{4a_{ux}a_{vy}\pi^2 \mu u_x v_y}{3L^2} \cos\left(\frac{a_{ux}\pi x}{L}\right) \cos\left(\frac{a_{vy}\pi y}{L}\right) + \\
& - \frac{4a_{ux}a_{wz}\pi^2 \mu u_x w_z}{3L^2} \cos\left(\frac{a_{ux}\pi x}{L}\right) \sin\left(\frac{a_{wz}\pi z}{L}\right) + \\
& - \frac{2a_{uy}a_{vx}\pi^2 \mu u_y v_x}{L^2} \sin\left(\frac{a_{uy}\pi y}{L}\right) \sin\left(\frac{a_{vx}\pi x}{L}\right) + \\
& + \frac{2a_{uz}a_{wx}\pi^2 \mu u_z w_x}{L^2} \cos\left(\frac{a_{ux}\pi x}{L}\right) \sin\left(\frac{a_{uz}\pi z}{L}\right) + \\
& - \frac{4a_{vy}a_{wz}\pi^2 \mu v_y w_z}{3L^2} \cos\left(\frac{a_{vy}\pi y}{L}\right) \sin\left(\frac{a_{wz}\pi z}{L}\right) + \\
& - \frac{2a_{vz}a_{wy}\pi^2 \mu v_z w_y}{L^2} \cos\left(\frac{a_{vz}\pi z}{L}\right) \cos\left(\frac{a_{wy}\pi y}{L}\right).
\end{aligned}$$