$$\xi_{0^2} = \frac{1}{2\sqrt{\pi}}\left(C^{0}_{00} - \frac{1}{\sqrt{5}}C^{0}_{20} + \frac{2}{5}C^{2}_{00} - \frac{2}{5\sqrt{5}}C^{2}_{20}\right)$$

$$\xi_{\parallel^2} = \frac{1}{2\sqrt{\pi}}\cdot\frac{1}{2}\left(2C^{0}_{00} + \frac{1}{\sqrt{5}}C^{0}_{20} - \sqrt{\frac{3}{5}}C^{0}_{22} - \frac{2}{5}C^{2}_{00} - \frac{1}{5\sqrt{5}}C^{2}_{20} + \frac{1}{5}\sqrt{\frac{3}{5}}C^{2}_{22}\right)$$

$$\xi_{\perp^2} = \frac{1}{2\sqrt{\pi}}\cdot\frac{1}{2}\left(2C^{0}_{00} + \frac{1}{\sqrt{5}}C^{0}_{20} + \sqrt{\frac{3}{5}}C^{0}_{22} - \frac{2}{5}C^{2}_{00} - \frac{1}{5\sqrt{5}}C^{2}_{20} - \frac{1}{5}\sqrt{\frac{3}{5}}C^{2}_{22}\right)$$

$$\xi_{0\parallel} = \frac{-1}{2\sqrt{\pi}}\cdot\frac{3}{32}\sqrt{\frac{6}{5}}\pi\left(C^{1}_{21} - \frac{1}{4}C^{3}_{21} - \frac{5}{128}C^{5}_{21} - \ldots\right)$$

$$\xi_{0\perp} = +\frac{1}{2\sqrt{\pi}}\cdot\frac{3}{32}\sqrt{\frac{6}{5}}\pi\left(C^{1}_{2-1} - \frac{1}{4}C^{3}_{2-1} - \frac{5}{128}C^{5}_{2-1} - \ldots\right)$$

$$\xi_{\parallel\perp} = \frac{1}{2\sqrt{\pi}}\cdot\sqrt{\frac{3}{5}}\left(C^{0}_{2-2} - \frac{1}{5}C^{2}_{2-2}\right)$$

$\cancel{4}\times(1+3+5+7)=64$

$$\xi_{s^2} = \frac{1}{2\sqrt{\pi}}\left(C^{0}_{00} - \frac{1}{\sqrt{5}}C^{0}_{20}\right)$$

$$\xi_{0s} = \frac{1}{2\sqrt{\pi}}\cdot\frac{2}{\sqrt{3}}\left(C^{1}_{00} - \frac{1}{\sqrt{5}}C^{1}_{20}\right)$$

$$\xi_{\parallel s} = -\frac{1}{2\sqrt{\pi}}\cdot\frac{3}{8}\sqrt{\frac{2}{5}}\pi\left(C^{0}_{21} - \frac{1}{8}C^{2}_{21} - \frac{1}{64}C^{4}_{21} - \ldots\right)$$

$$\xi_{\perp s} = -\frac{1}{2\sqrt{\pi}}\cdot\frac{3}{8}\sqrt{\frac{2}{5}}\pi\left(C^{0}_{2-1} - \frac{1}{8}C^{2}_{2-1} - \frac{1}{64}C^{4}_{2-1} - \ldots\right)$$

$C^{2}_{20} \equiv 0 \qquad C^{2}_{22} \equiv 0$

$$C^{0}_{00} \equiv 2\sqrt{\pi}\cdot\frac{1}{3}\left(\xi_{0^2} + \xi_{\parallel^2} + \xi_{\perp^2}\right)$$

$$C^{0}_{20} \equiv 2\sqrt{\pi}\cdot\frac{1}{3}\sqrt{5}\left(\xi_{0^2} + \xi_{\parallel^2} + \xi_{\perp^2} - 3\xi_{s^2}\right)$$

$$C^{2}_{00} \equiv 2\sqrt{\pi}\cdot\frac{5}{2}\left(\xi_{0^2} - \xi_{s^2}\right)$$

$$C^{0}_{22} \equiv 2\sqrt{\pi}\cdot -\sqrt{\frac{5}{3}}\left(\xi_{\parallel^2} - \xi_{\perp^2}\right)$$

$C^{0}_{21} \equiv 2\sqrt{\pi}\cdot -\frac{8}{3}\sqrt{\frac{5}{2}}\cdot\frac{1}{\pi}\,\xi_{\parallel s} \qquad C^{i}_{21} \equiv 0 \quad (i \geq 2)$

$C^{0}_{2-1} \equiv 2\sqrt{\pi}\cdot -\frac{8}{3}\sqrt{\frac{5}{2}}\cdot\frac{1}{\pi}\,\xi_{\perp s} \qquad C^{i}_{2-1} \equiv 0 \quad (i \geq 2)$

$C^{0}_{2-2} \equiv 2\sqrt{\pi}\cdot\sqrt{\frac{5}{3}}\,\xi_{\parallel\perp} \qquad C^{2}_{2-2} \equiv 0$

$C^{1}_{00} \equiv 2\sqrt{\pi}\cdot\frac{1}{2}\sqrt{3}\,\xi_{0s} \qquad C^{1}_{20} \equiv 0$

$C^{1}_{21} \equiv 2\sqrt{\pi}\cdot -\frac{32}{3}\sqrt{\frac{5}{6}}\frac{1}{\pi}\,\xi_{0\parallel} \qquad C^{i}_{21} \equiv 0 \quad (i \geq 3)$

$C^{1}_{2-1} \equiv 2\sqrt{\pi}\cdot +\frac{32}{3}\sqrt{\frac{5}{6}}\frac{1}{\pi}\,\xi_{0\perp} \qquad C^{i}_{2-1} \equiv 0 \quad (i \geq 3)$