Reconstruction of heavy quark current correlators at $\mathcal{O}(\alpha_s^3)$

The files of the form `approx_δ_nlX.m` with $\delta \in \{$`v`, `a`, `s`, `p`$\}$ each contain one typical approximant to the vector, axial-vector, scalar or pseudo-scalar polarisation function with $n_l =$ `X` light flavours. The approximants are given in terms of

$$\texttt{z} = \frac{q^2}{4m^2}$$

and

$$\begin{aligned}\texttt{pi1[z]} = \Pi^{(1),v}(z) =& \frac{3}{16\pi^2}\left[\frac{5}{6} + \frac{13}{6z} - (1-z)\frac{3+2z}{z}G(z) + (1-z)\frac{1-16z}{6z}G(z)^2\right.\\ &\left. -\frac{1+2z}{6z}\left(1+2z(1-z)\frac{d}{dz}\right)\frac{I(z)}{z}\right],\end{aligned}$$

with

$$\begin{aligned}I(z) =& 6\big(\zeta_3 + 4\,\mathrm{Li}_3(-u) + 2\,\mathrm{Li}_3(u)\big) - 8\big(2\,\mathrm{Li}_2(-u) + \mathrm{Li}_2(u)\big)\log(u)\\ &- 2\big(2\log(1+u) + \log(1-u)\big)\log(u)^2\,,\\ G(z) =& \frac{1}{2z}\frac{\log(u)}{\sqrt{1-\frac{1}{z}}}, \qquad\qquad u = \frac{\sqrt{1-\frac{1}{z}}-1}{\sqrt{1-\frac{1}{z}}+1}.\end{aligned}$$

`pi1[z]` is also given in computer readable form in the file `pi1.m`