Appendix A

Electroweak Radiation Correction

All our theoretical functions have been corrected for electroweak radiation before fitting to our lepton spectrum. The electroweak radiation process is similar to the gluon radiation in Fig 2.2 while replacing gluon by γ and Z. It was described by Marciano and Atwood [59]. The correction is made by multiplying the theoretical lepton spectrum with the electroweak radiation correction factor, $f_{EW}(E_\ell)$, as follows:

$$f_{EW}(E_\ell) = (\frac{E_{max} - E_\ell}{CE_\ell})^r \tag{A.1}$$

where, $r = \frac{2\alpha}{\pi}[ln(\frac{2E_\ell}{m_\ell}) - 1]$, and the m_ℓ and E_ℓ are the lepton mass and energy. C is related to the averaged and maximum energies of the lepton through:

$$C = (E_{max} - \bar{E}_\ell)/\bar{E}_\ell \tag{A.2}$$