Figure F.1 shows Background-subtracted normalized $m_{\mu^+\mu^-}$ distribution for quantities $m'_{1,2}(\mu^+\mu^-)$, defined as

$$m'_{1,2}(\mu^+\mu^-) \equiv (m(\mu^+\mu^-) - 2m_\mu) \frac{Q_{1,2}^0}{Q} + 2m_\mu,$$

where

$$Q_{1,2}^0 \equiv m_{\chi_{c1,2}} - m_{J/\psi} - 2m_\mu,$$

$$Q \equiv m(J/\psi \mu^+\mu^-) - m_{J/\psi} - 2m_\mu,$$

$Q_1^0$ and $Q_2^0$ are nominal energy releases for $\chi_{c1}/\chi_{c2}$ signal decays, respectively, $Q$ is the measured energy release, $m(J/\psi \mu^+\mu^-)$ and $m(\mu^+\mu^-)$ are the measured masses of $J/\psi \mu^+\mu^-$ and $\mu^+\mu^-$ systems, respectively, and $m_\mu, m_{J/\psi}, m_{\chi_{c1}}$ and $m_{\chi_{c2}}$ are known masses [?] of $\mu, J/\psi, \chi_{c1}$ and $\chi_{c2}$ particles. For true signal decays of $\chi_{c1}/\chi_{c2}$ mesons, when $Q \approx Q_1^0$ or $Q \approx Q_2^0$, this quantity is $m'_{1,2}(\mu^+\mu^-) \approx m(\mu^+\mu^-)$.

Figure F.1: Background-subtracted normalized $m'_{1,2}(\mu^+\mu^-)$ distribution for $\chi_{c1} \rightarrow J/\psi \mu^+\mu^-$ (solid red circles) and $\chi_{c2} \rightarrow J/\psi \mu^+\mu^-$ (open blue squares) decays. The curves shows the distribution from phase-space simulations, reweighted according to Eq. A.1.