

Lepton Jets from Radiating Dark Matter

based on arXiv:1505.07459 (accepted by JHEP)

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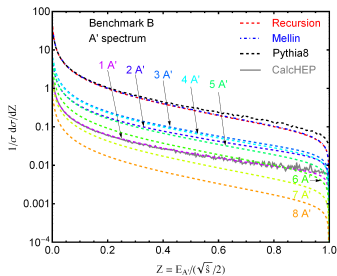
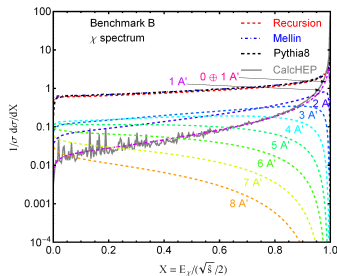
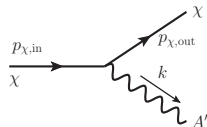
22.06.2015

Analytic Description of Radiation

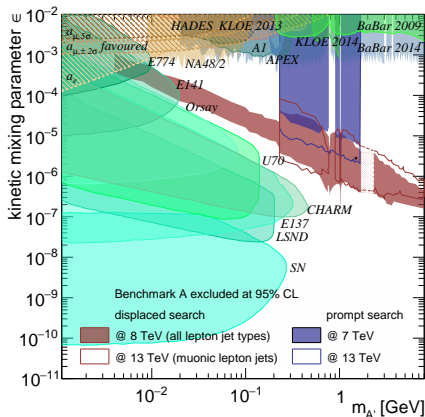
DM spectrum given by inverse Mellin transform:

$$f_{\chi}(X) = \frac{1}{2\pi i} \int_{c-i\infty}^{c+i\infty} ds X^{-s} \varphi(s). \quad (2)$$

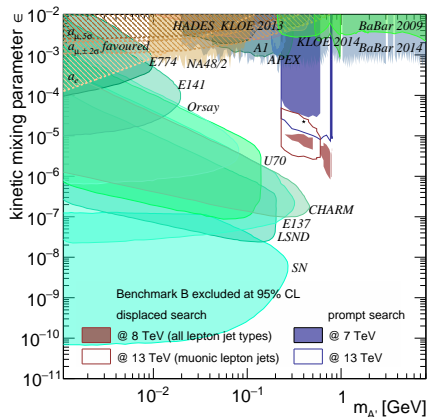
with $\varphi(s+1) = e^{-\langle n_{A'} \rangle (1-\overline{X}^s)}$, $\overline{X}^s \equiv \frac{1}{\langle n_{A'} \rangle} \frac{\alpha_{A'}}{2\pi} \int_{X_{\min}}^{X_{\max}} dX X^s \int_{t_{\min}}^{t_{\max}} \frac{dt}{t} P_{\chi \rightarrow \chi}(x)$



Exclusion Limits @ LHC



(a)



(b)

Prompt lepton jet search (ATLAS, 7 TeV, 5 fb^{-1} , arXiv:1212.5409)

Displaced lepton jet search (ATLAS, 8 TeV, 20.3 fb^{-1} , arXiv:1409.0746)