Dark matter constraints from cosmic-ray positrons

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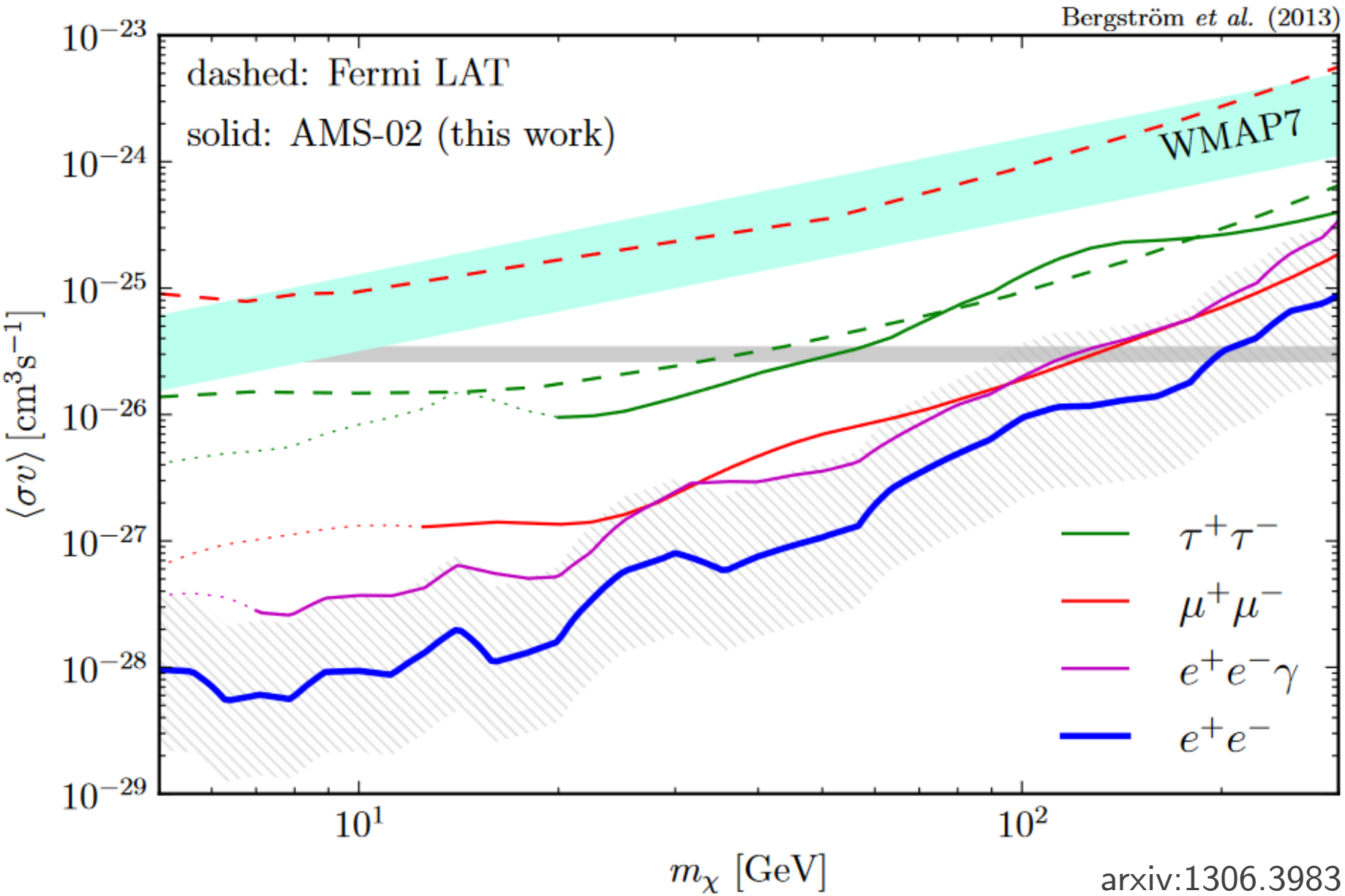
Previous dark matter constraints from cosmic-ray positrons

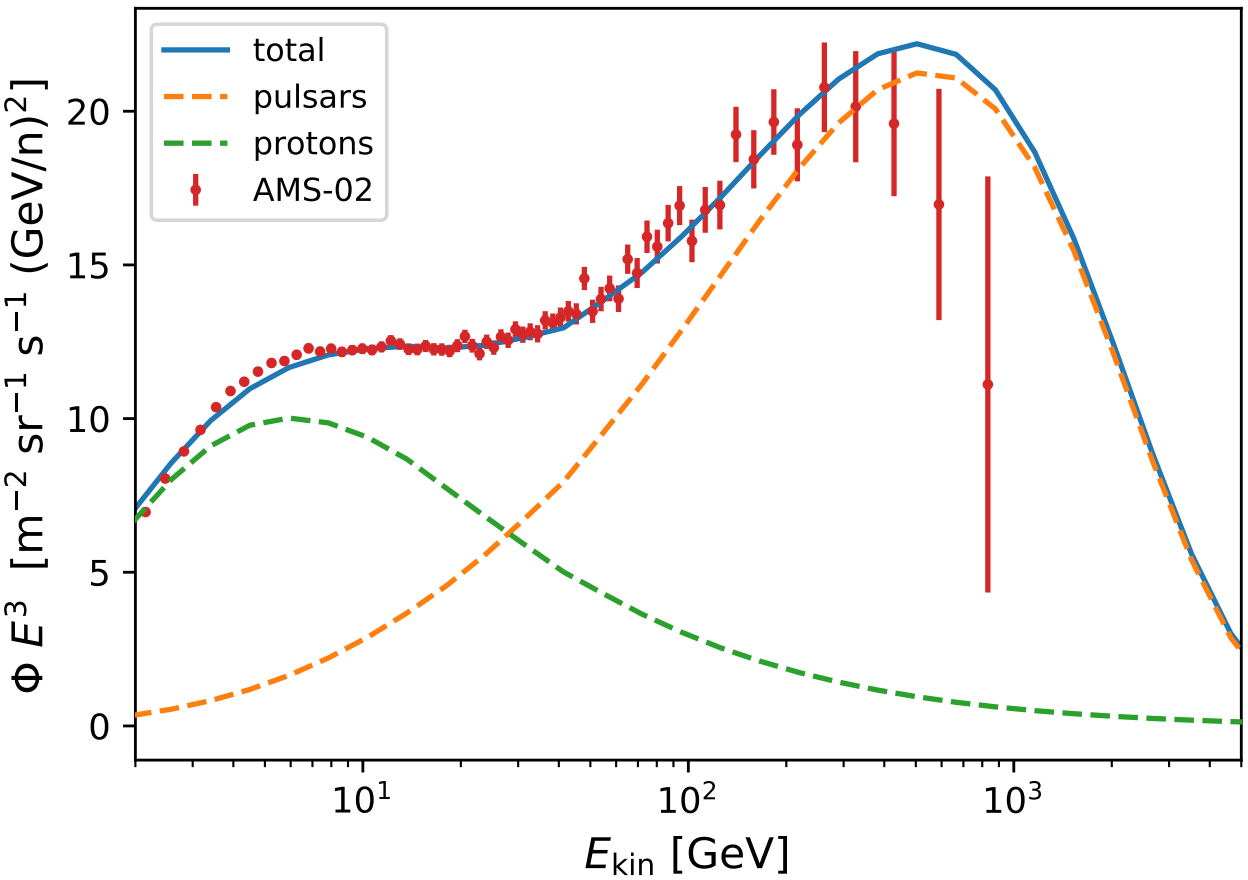


arxiv:1306.3983

In this work

- Recent positron and proton data from AMS-02 (PRL 122.041102, PRL 121.051101, PRL 114.171103)
- Simulating cosmic-ray propagation using Galprop v.56
- New solar modulation model: time-, charge- and rigidity-dependent model (arXiv:2007.00669)
- Fitting with minimisers (iminuit, PyMultiNest)

Preliminary results



Examples of fitted parameters:

- Diffusion coefficient: $1.8 \cdot 10^{28}$ cm^2/s
- Pulsar formation rate: 0.5 psr/century
- Proton spectral break: 23.3 GeV

- Secondary positrons: produced from protons
- Primary positrons: produced from pulsars
- Next: add DM contribution to compute limits on DM