

Data for neutrino fluxes after evolution

The data for neutrino fluxes from DM annihilations in the Earth and in the Sun, computed in

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 “Spectra of neutrinos from dark matter annihilation”
 hep-ph/0506298v5

can be downloaded from any of the following locations:

- www.to.infn.it/~fornengo/DMnu.html
- www.cern.ch/astrumia/DMnu.html
- www.marcocirelli.net/DMnu.html

Numerical tables of the fluxes

The file `DMnuEvolFluxes.zip` contains the data tables of the neutrino fluxes *after propagation* (i.e. the evolution due to oscillations and interactions). The names of the files are self-explanatory:

<code>earth_nue_EVOL.dat</code>	fluxes of ν_e from annihilations in Earth
<code>earth_numu_EVOL.dat</code>	fluxes of ν_μ from annihilations in Earth
<code>earth_nutau_EVOL.dat</code>	fluxes of ν_τ from annihilations in Earth
<code>earth_nueb_EVOL.dat</code>	fluxes of $\bar{\nu}_e$ from annihilations in Earth
<code>earth_numub_EVOL.dat</code>	fluxes of $\bar{\nu}_\mu$ from annihilations in Earth
<code>earth_nutaub_EVOL.dat</code>	fluxes of $\bar{\nu}_\tau$ from annihilations in Earth
<code>sun_nue_EVOL.dat</code>	fluxes of ν_e from annihilations in Sun
<code>sun_numu_EVOL.dat</code>	fluxes of ν_μ from annihilations in Sun
<code>sun_nutau_EVOL.dat</code>	fluxes of ν_τ from annihilations in Sun
<code>sun_nueb_EVOL.dat</code>	fluxes of $\bar{\nu}_e$ from annihilations in Sun
<code>sun_numub_EVOL.dat</code>	fluxes of $\bar{\nu}_\mu$ from annihilations in Sun
<code>sun_nutaub_EVOL.dat</code>	fluxes of $\bar{\nu}_\tau$ from annihilations in Sun

Each file is a table of the following format:

for the files concerning the Earth:

$m_{\text{DM}} \quad x \quad b \quad \tau \quad c \quad q \quad t \quad Z \quad W$

for the files concerning the Sun:

$m_{\text{DM}} \quad x \quad \nu \quad b \quad \tau \quad c \quad q \quad t \quad Z \quad W$

where m_{DM} is the mass of the annihilating DM particle, $x = E_\nu/m_{\text{DM}}$ is the rescaled neutrino energy and the other columns give the neutrino fluxes dN/dx normalized per single DM annihilation for the annihilation channels $\nu\bar{\nu}$, $b\bar{b}$, $\tau\bar{\tau}$, $c\bar{c}$, light quarks ($u\bar{u} \equiv d\bar{d} \cong s\bar{s}$), ZZ , W^+W^- . The channel $\nu\bar{\nu}$ is present only for the Sun case; in the Earth case the flux is simply monochromatic at m_{DM} so it is not presented. The values of m_{DM} provided are the following. For the case of the Earth (14 values):

$$m_{\text{DM}} = \{10, 30, 50, 70, 90, 100, 150, 200, 250, 300, 500, 700, 900, 1000\} \text{ GeV.}$$

For the case of the Sun (12 values):

$$m_{\text{DM}} = \{10, 30, 50, 70, 90, 100, 200, 300, 500, 700, 900, 1000\} \text{ GeV.}$$

The values of x span $(0,1]$ with bins $\delta x = 0.01$.

Differences with Release 3

A bug in the production of the fluxes of *anti*-neutrinos after propagation from the Sun has been fixed. All other fluxes are unchanged.

Release 4 corresponds to **v5** of the paper in the arXiv.

Differences between Release 3 and Release 2

A numerical bug in the implementation of the boost for top quark decays has been fixed (modifications are quite small; they affect the $t\bar{t}$ channels in Figures 2, 5 \rightarrow 12, as well as in Tables 3 and 4 in the paper).

Release 3 corresponds to **v4** of the paper in the arXiv.

Differences between Release 2 and Release 1

An erroneous double counting of the prompt neutrino yield in W -boson decays has been fixed (modifications affect the W^+W^- and $t\bar{t}$ channels in Figures 2, 5 \rightarrow 12, as well as in Tables 3 and 4 in the paper) and a few parameters have been updated (modifications are generally small or null).

Release 2 corresponds to **v3** of the paper in the arXiv. Previous versions on the arXiv and the journal version on Nuclear Physics B had used Release 1.