

# MadDM v.3.0 - Getting started (read in advance!)

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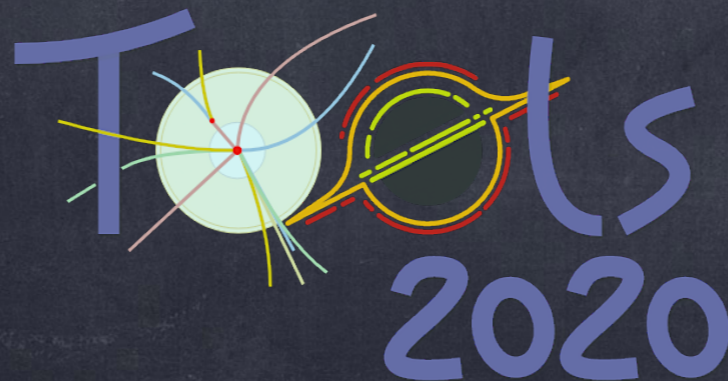


Jan Heisig (UCL - CP3)  
on behalf of the  
MadDM collaboration\*

Chargé de  
recherches



\*F. Ambrogi, C. Arina, M. Backovic, JH, F. Maltoni, L. Mantani,  
O. Mattelaer, G. Mohlabeng, 1804.00044, Phys. Dark Univ. (2019)





# Getting started - Installation

## 1. Download MadGraph5\_aMC@NLO v2.6.X, e.g.:

```
yourdir$ wget https://launchpad.net/mg5amcnlo/2.0/2.6.x/+download/  
MG5_aMC_v2.6.7.tar.gz
```

## 2. Unpack and start MadGraph5\_aMC@NLO:

```
yourdir$ tar -xzf MG5_aMC_v2.6.7.tar.gz  
yourdir$ cd MG5_aMC_v2_6_7/  
MG5_aMC_v2_6_7$ bin/mg5_aMC  
New Version of MG5 available! Do you want to update your current  
version? [n, y, on_exit][60s to answer]  
> n  
MG5_aMC>
```

*Note: Do not update to latest version!*

## 3. Install MadDM:

```
MG5_aMC> install maddm  
MG5_aMC> quit  
MG5_aMC_v2_6_7$
```

# Getting started - Run MadDM

## 4. Start MadDM and enter tutorial mode:

```
MG5_aMC_v2_6_7$ python bin/maddm.py
MadDM> tutorial
...
```

*Note: Use python 2,  
python 3 not supported yet.*

Now you enter the tutorial mode that guides you through the basic commands  
...just follow the screen output!

## 5. Installation of dependencies for indirect detection:

The computation of indirect detection observables relies on further tools. When running `indirect_detection` for the first time MadDM asks which ones to install:

```
MadDM> add indirect_detection
...
```

```
Which one do you want to install? (this needs to be done only once)
```

1. `pythia8 shower (precise mode) [1410.3012]` : will be installed
2. `PPPC4DMID all (fast mode) [1012.4515]` : will be installed
3. `dragon propagation (precise mode) [0807.4730]` : will be installed
4. `dragon_data_from_galprop input for dragon [1712.09755]` : will be installed

Press enter to install them all.

**Note:** installation can take an **hour** or more. Do well **before** the tutorial session!

# Getting started - Run MadDM

The installation of dependencies can also be done at any time by just typing, e.g.

```
MadDM> install pythia8
```

and analogous for the other tools.

## 6. Quit MadDM:

```
MadDM> quit
```

```
MG5_aMC_v2_6_7$
```

## 7. Load a new model

Particle physics models need to be written in the UFO format. To load your own model just copy it to the models folder and import it in MadDM:

```
MG5_aMC_v2_6_7$ cp -r path/to/YOURMODEL models/
```

```
MG5_aMC_v2_6_7$ python bin/maddm.py
```

```
MadDM> import model YOURMODEL
```

*Note: A database of models can be found on:*

*<http://feynrules.irmp.ucl.ac.be/wiki/ModelDatabaseMainPage>*

*Simplified dark matter models to be used in tutorial can be downloaded from:*

*<http://feynrules.irmp.ucl.ac.be/wiki/DMsimp>*

More information available on:

<https://launchpad.net/maddm>

and

[arxiv:1804.00044](https://arxiv.org/abs/1804.00044)

...and in the MadDM tutorial session on  
Monday, November 2<sup>nd</sup>, 2–3 pm CET

See you there!