Particle pusher interface

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Contents

1 Setup

1.1 Edit paths

```
cd ~/analysator
gedit pyMayavi/particlepusherinterface.py
```

Locate the following and change the paths (/home/otto to e.g. /home/sanni) to vlasiator path:

```
#Executable location
parse_args.append("/home/otto/vlasiator/particle_post_pusher")
# Options
parse_args.append("--run_config")
# CFG location
parse_args.append("/home/otto/vlasiator/particles/particles.cfg")
```

Note: you must have particle_post_pusher compiled:

```
cd ~/vlasiator
make particle_post_pusher
```

1.2 Edit particle pusher cfg

```
# Change to Vlasiator path:
cd ~/vlasiator/particles
gedit particles.cfg
```

Now we want to set up the paths to vlsv files we are using in our analysis
Locate and edit the following in particles.cfg to local paths:

```
input_filename_pattern = /lustre/tmp/alfthan/2D/sisu_equatorial_7/bulk.%07i.vlsv
```

Make sure mode = analysator (as follows):

```
mode = analysator
```

Set up the starting and ending time (particles will be propagated from starting time to ending time:

```
# Starting time of the particles (in seconds)
start_time = 1488
end_time = 2976
```

Thats it!

2 Using the particle pusher interface

Ipython example:
Starting up the particle pusher (Use VlasiatorReader, not VlsvReader):

```
ipython

In [2]: import pytools as pt

In [3]: f = pt.vlsvfile.VlasiatorReader('bulk.0001480.vlsv')

In [4]: grid = pt.grid.Particlepusherinterface(f, 'rho')
```

2.1 Using the particle pusher options

The usage is illustrated in the Figures 1 and 2.

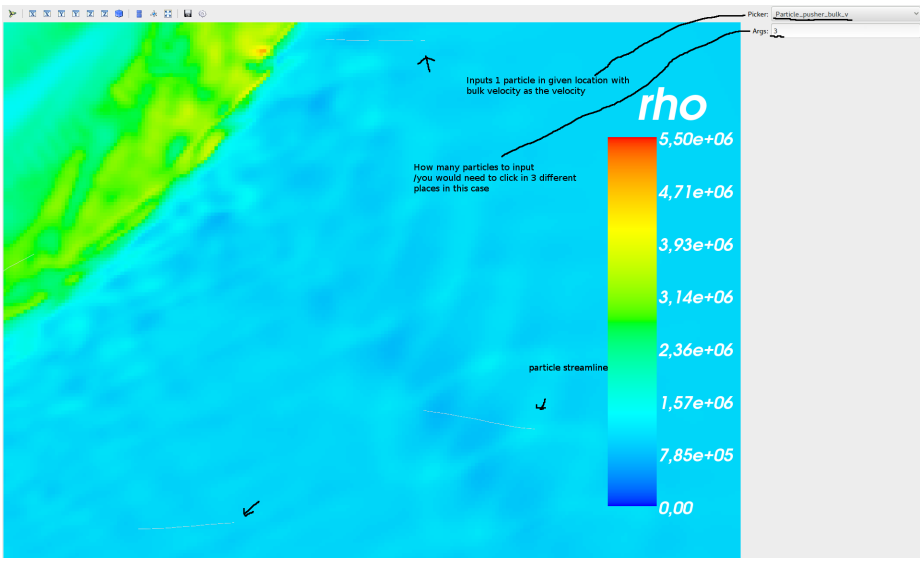

Figure 1: Particle pusher usage for bulk velocity sampling

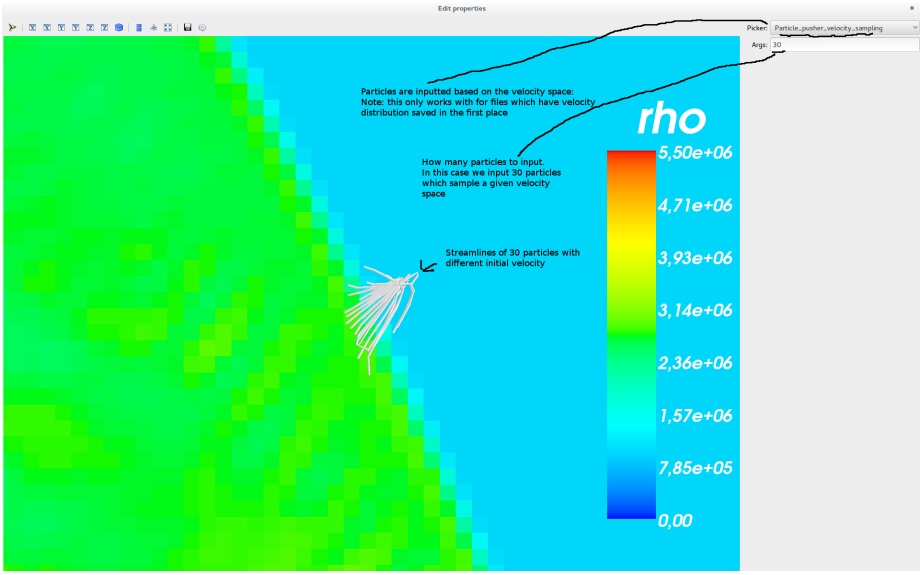

Figure 2: Particle pusher usage for velocity space sampling