

Vlasiator test cases technical information

Diffusion

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This document gives technical information on the Diffusion test case.

1 Purpose

Look at the spatial diffusion of a Gaussian blob of density of amplitude 5 in a constant density background of amplitude 1.

2 Implementation

The test case is two-dimensional, the scale width of the density blob in x and y is customisable. A magnetic field along z is possible.

3 Options

The options available in the `cfg` file are:

<code>B0</code>	z magnetic field (T)
<code>rho</code>	Number density (m^{-3})
<code>Temperature</code>	Temperature (K)
<code>Scale_[xy]</code>	Scale width of the Gaussian blob of density (amplitude 5 times <code>rho</code>) in x/y
<code>nSpaceSamples</code>	Number of sampling points along spatial dimensions within a spatial cell, includes the corners (minimum 2)
<code>nVelocitySamples</code>	Number of sampling points along velocity dimensions within a velocity cell, includes the corners (minimum 2)