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Curve Guide

Reference

Panel:
Physics ▸ Force Fields

Type:
Curve Guide

The *Curve Guide* is used to force particles to follow a certain path defined by a Curve Object. A typical scenario would be to move a red blood cell inside a vein, or to animate the particle flow in a motor. You can also use *Curve Guide* to shape certain hair strands.

Note

You can also use the Particle Edit Mode to define a path.

Since you can animate curves as a soft body or any other usual way, you may build very complex animations while keeping great control and keeping the simulation time to a minimum.

To make particles point in the direction of the curve, you need to set their *Orientation Axis* to *Velocity / Hair*, enable *Dynamic*, and set their *Angular Velocity Axis* to *Velocity*, all in the the Rotation settings of the particle system. The Follow Path Constraint and the curve's legacy Follow option won't work for this.

A *Curve Guide* force affects all particles on the same layer, independently from their distance to the curve. If you have several guides in a layer, their fiel add up to each other (the way you may have learned it in your physics course). But you can limit their influence radius by changing the *Minimum Distan* (see below).

A particle follows a *Curve Guide* during its lifetime, the velocity depends on its lifetime and the length of the path.

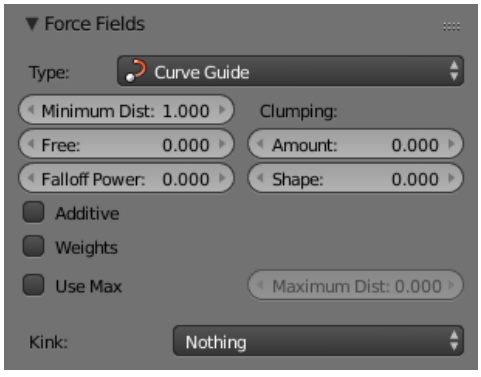
Note

The Curve Guide does not affect soft bodies.

Options

TODO

Update image



UI for a Curve Guide force field.

Free
Fraction of particle life time, that is not used for the curve.

Falloff Power
This setting governs the strength of the guide between *Min Distance* and *Max Distance*. A falloff of 1 means a linear progression.

Additive

If you use *Additive*, the speed of the particles is also evaluated depending on the falloff.

Weights

Use Curve weights to influence the particle influence along the curve.

Clumping Amount

The particles come together at the end of the curve (1) or they drift apart (-1).

Shape

Defines the form in which the particles come together. +0.99: the particles meet at the end of the curve. 0: linear progression along the curve. -0.9 the particles meet at the beginning of the curve.

Min Distance

The distance from the curve, up to where the force field is effective with full strength. If you have a falloff of 0, this parameter will have no effect, because the field is effective with full strength up to *Max Distance* (or the infinity). *Min Distance* is shown with a circle at the endpoints of the cur in the 3D Viewport.

Max Distance

The maximum influence radius. Shown by an additional circle around the curve object.

Kink

> Warning
>
> This feature is broken in the current version, see Bug Report #46776.

Type

Changes the shape that the particles can take.

None:

> TODO
>
> Add this information.

Braid:

> TODO
>
> Add this information.

Curl:

The radius of the influence depends on the distance of the curve to the emitter.

Radial:

A three-dimensional, standing wave.

Roll:

A one-dimensional, standing wave.

Rotation:

> TODO
>
> Add this information.

Wave:

A two-dimensional, standing wave.

It is not so easy to describe the resulting shapes, so have a look at the example below.

Kink options of a curve guide. From left to right: Radial, Wave, Braid, Roll. Animation.

Axis

Which axis to use for the offset.

Frequency

The frequency of the offset.

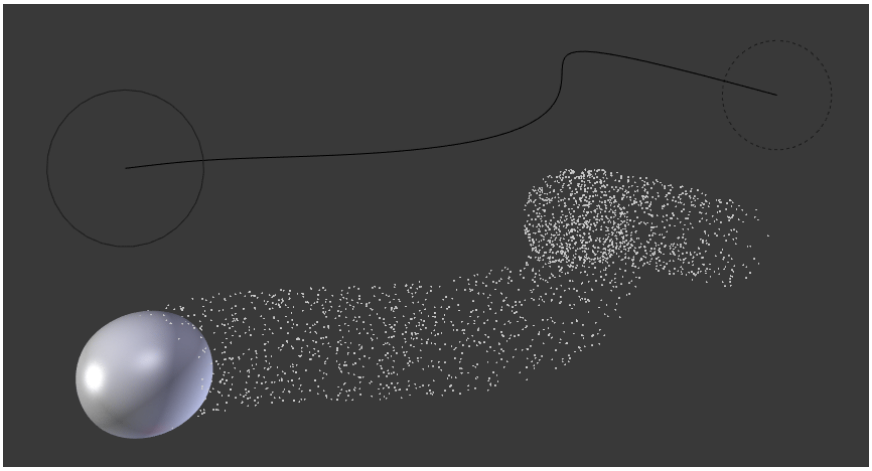
Shape

Adjust the offset to the beginning/end.

Amplitude

The Amplitude of the offset.

Examples



Curve Guide force field.

Made with Furo
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