Skip to content

ParticleSystem(bpy_struct)

base class — bpy_struct

class bpy.types.**ParticleSystem(bpy_struct)**

Particle system in an object

active_particle_target

TYPE:

ParticleTarget, (readonly)

active_particle_target_index

TYPE:

int in [0, inf], default 0

child_particles

Child particles generated by the particle system

TYPE:

bpy_prop_collection of ChildParticle, (readonly)

child_seed

Offset in the random number table for child particles, to get a different randomized result

TYPE:

int in [0, inf], default 0

cloth

Cloth dynamics for hair

TYPE:

ClothModifier, (readonly, never None)

dt_frac

The current simulation time step size, as a fraction of a frame

TYPE:

float in [0.00990099, 1], default 0.0, (readonly)

has_multiple_caches

Particle system has multiple point caches

TYPE:

boolean, default False, (readonly)

invert_vertex_group_clump

Negate the effect of the clump vertex group

TYPE:

boolean, default False

invert_vertex_group_density

Negate the effect of the density vertex group

TYPE:

boolean, default False

boolean, default False

invert_vertex_group_field

Negate the effect of the field vertex group

TYPE:

boolean, default False

invert_vertex_group_kink

Negate the effect of the kink vertex group

TYPE:

boolean, default False

invert_vertex_group_length

Negate the effect of the length vertex group

TYPE:

boolean, default False

invert_vertex_group_rotation

Negate the effect of the rotation vertex group

TYPE:

boolean, default False

invert_vertex_group_roughness_1

Negate the effect of the roughness 1 vertex group

TYPE:

boolean, default False

invert_vertex_group_roughness_2

Negate the effect of the roughness 2 vertex group

TYPE:

boolean, default False

invert_vertex_group_roughness_end

Negate the effect of the roughness end vertex group

TYPE:

boolean, default False

invert_vertex_group_size

Negate the effect of the size vertex group

TYPE:

boolean, default False

invert_vertex_group_tangent

Negate the effect of the tangent vertex group

TYPE:

boolean, default False

invert_vertex_group_twist

Negate the effect of the twist vertex group

TYPE:

boolean, default False

invert_vertex_group_velocity

Negate the effect of the velocity vertex group

TYPE:

boolean, default False

is_editable

Particle system can be edited in particle mode

TYPE:

boolean, default False, (readonly)

is_edited

Particle system has been edited in particle mode

TYPE:

boolean, default False, (readonly)

is_global_hair

Hair keys are in global coordinate space

TYPE:

boolean, default False, (readonly)

name

Particle system name

TYPE:

string, default “”, (never None)

parent

Use this object’s coordinate system instead of global coordinate system

TYPE:

`Object`

particles

Particles generated by the particle system

TYPE:

`bpy_prop_collection` of `Particle`, (readonly)

point_cache

TYPE:

`PointCache`, (readonly, never None)

reactor_target_object

For reactor systems, the object that has the target particle system (empty if same object)

TYPE:

`Object`

reactor_target_particle_system

For reactor systems, index of particle system on the target object

TYPE:

int in [1, 32767], default 0

seed

Offset in the random number table, to get a different randomized result

TYPE:

int in [0, inf], default 0

settings

Particle system settings

TYPE:

`ParticleSettings`, (never None)

targets

Target particle systems

TYPE:

`bpy_prop_collection` of `ParticleTarget`, (readonly)

use_hair_dynamics

Enable hair dynamics using cloth simulation

TYPE:

boolean, default False

use_keyed_timing

Use key times

TYPE:

boolean, default False

vertex_group_clump

Vertex group to control clump

TYPE:

string, default “”, (never None)

vertex_group_density

Vertex group to control density

TYPE:

string, default “”, (never None)

vertex_group_field

Vertex group to control field

TYPE:

string, default “”, (never None)

vertex_group_kink

Vertex group to control kink

TYPE:

string, default “”, (never None)

vertex_group_length

vertex_group_length

Vertex group to control length

TYPE:

string, default “”, (never None)

vertex_group_rotation

Vertex group to control rotation

TYPE:

string, default “”, (never None)

vertex_group_roughness_1

Vertex group to control roughness 1

TYPE:

string, default “”, (never None)

vertex_group_roughness_2

Vertex group to control roughness 2

TYPE:

string, default “”, (never None)

vertex_group_roughness_end

Vertex group to control roughness end

TYPE:

string, default “”, (never None)

vertex_group_size

Vertex group to control size

TYPE:

string, default “”, (never None)

vertex_group_tangent

Vertex group to control tangent

TYPE:

string, default “”, (never None)

vertex_group_twist

Vertex group to control twist

TYPE:

string, default “”, (never None)

vertex_group_velocity

Vertex group to control velocity

TYPE:

string, default “”, (never None)

co_hair(object, *, particle_no=0, step=0)

Obtain cache hair data

PARAMETERS:

- **object** (`Object`, (never None)) – Object
- **particle_no** (*int in [-inf, inf], (optional)*) – Particle no
- **step** (*int in [-inf, inf], (optional)*) – step no

RETURNS:

Co, Exported hairkey location

RETURN TYPE:

`mathutils.Vector` of 3 items in [-inf, inf]

uv_on_emitter(modifier, particle, *, particle_no=0, uv_no=0)

Obtain uv for all particles

PARAMETERS:

- **modifier** (`ParticleSystemModifier`, (never None)) – Particle modifier
- **particle** (`Particle`, (never None)) – Particle
- **particle_no** (*int in [-inf, inf], (optional)*) – Particle no
- **uv_no** (*int in [-inf, inf], (optional)*) – UV no

RETURNS:

uv

RETURN TYPE:

`mathutils.Vector` of 2 items in [-inf, inf]

mcol_on_emitter(modifier, particle, *, particle_no=0, vcol_no=0)

Obtain mcol for all particles

PARAMETERS:

- **modifier** (`ParticleSystemModifier`, (never None)) – Particle modifier
- **particle** (`Particle`, (never None)) – Particle
- **particle_no** (*int in [-inf, inf], (optional)*) – Particle no
- **vcol_no** (*int in [-inf, inf], (optional)*) – vcol no

RETURNS:

mcol

RETURN TYPE:

`mathutils.Color` of 3 items in [0, inf]

classmethod bl_rna_get_subclass(id, default=None)

PARAMETERS:

id (*str*) – The RNA type identifier.

RETURNS:

The RNA type or default when not found.

RETURN TYPE:

`bpy.types.Struct` subclass

classmethod bl_rna_get_subclass_py(id, default=None)

PARAMETERS:

id (*str*) – The RNA type identifier.

RETURNS:

The class or default when not found.

RETURN TYPE:

type

Inherited Properties

- bpy_struct.id_data

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.id_properties_clear
- bpy_struct.id_properties_ensure
- bpy_struct.id_properties_ui
- bpy_struct.is_property_hidden
- bpy_struct.is_property_overridable_library
- bpy_struct.is_property_readonly
- bpy_struct.is_property_set
- bpy_struct.items
- bpy_struct.keyframe_delete
- bpy_struct.keyframe_insert
- bpy_struct.keys
- bpy_struct.path_from_id
- bpy_struct.path_resolve
- bpy_struct.pop
- bpy_struct.property_overridable_library_set
- bpy_struct.property_unset
- bpy_struct.type_recast
- bpy_struct.values

References

- bpy.context.particle_system
- bpy.context.particle_system_editable
- DepsgraphObjectInstance.particle_system
- DynamicPaintBrushSettings.particle_system
- FluidFlowSettings.particle_system
- Object.particle_systems
- ParticleInstanceModifier.particle_system
- ParticleSystemModifier.particle_system
- ParticleSystems.active
- ShaderNodeTexPointDensity.particle_system