Animating Particle Properties Across Disparate Values

Supply keyframe sequences to do linear or nonlinear particle animations.

Overview

An `SKKeyframeSequence` object enables you to specify multiple values for an emitter node's properties over a specific time period. The property values you choose may be arbitrary, which results in your ability to graph those property changes linearly or nonlinearly over time.

When you use a sequence, the values are not randomized. Instead, the sequence specifies all of the values of the property. Each keyframe value includes a value object and a timestamp. The timestamps are specified in a range from `0` to `1.0`, where `0` represents the birth of the particle and `1.0` represents its death.

The properties for which SKEmitterNode offers a keyframe sequence are:

Property	Specifies	Example use
particleColorSequence	A sequence of arbitrary colors a particle should reflect over its lifetime.	Embers from a fire might specify the color sequence (white, yellow, orange, and brown) to appear hot, and then cool.
particleColorBlendFactorSequence	A sequence of color blend factors a particle should apply over its lifetime.	Embers from a fire might specify the color blend factor sequence (0, 1, 0, 1, … etc.) to simulate flickering.
particleScaleSequence	A sequence of sizes of a particle over its lifetime.	Balloons might use the scale sequence (0.1, 1, 1, 1, 0.1) to simulate inflation, and flying for some time before deflating.
particleAlphaSequence	A sequence of levels of transparency a particle undergoes over its lifetime.	Fireflies might specify a disparate sequence of alpha values to simulate random lighting patterns as they travel.

The following code demonstrates using particleScaleSequence to animate the scale of an emitter node's particles over their lifetime. Initially, the particles' scale is 0.2 and then increases to 0.7 one-quarter of the way through the sequence. Three-quarters of the way through the sequence, the scale reaches its minimum size, 0.1. It remains at this size until it dies.

```
let scaleSequence = SKKeyframeSequence(keyframeValues: [0.2, 0.7, 0.1],
                                       times: [0.0, 0.250, 0.75])
myEmitter.particleScaleSequence = scaleSequence
```