

管道 TubeGeometry

管道 TubeGeometry 几何体的功能就是基于一个3D曲线路径,生成一个管道几何体。

```
构造函数格式: TubeGeometry(path, tubularSegments, radius, radiusSegments, closed)
```

参数	值
path	扫描路径,路径要用三维曲线
tubularSegments	路径方向细分数,默认64
radius	管道半径,默认1
radiusSegments	管道圆弧细分数,默认8
closed	Boolean值,管道是否闭合

样条曲线生成圆管案例

```
// 三维样条曲线

const path = new THREE.CatmullRomCurve3([
    new THREE.Vector3(-50, 20, 90),
    new THREE.Vector3(-10, 40, 40),
    new THREE.Vector3(0, 0, 0),
    new THREE.Vector3(60, -60, 0),
    new THREE.Vector3(70, 0, 80)
]);

// path:路径    40: 沿着轨迹细分数    2: 管道半径    25: 管道截面圆细分数
    const geometry = new THREE.TubeGeometry(path, 40, 2, 25);
```

观察管道内壁

threejs默认只渲染mesh三角形的正面,如果想看到管道内壁,可以设置双面渲染

THREE.DoubleSide .

```
const material = new THREE.MeshLambertMaterial({
    side:THREE.DoubleSide,//双面显示看到管道内壁
});
```

测试其他曲线

你也可以使用下面直线替换上面的样条曲线查看圆管生成效果。

```
// LineCurve3创建直线段路径
const path = new THREE.LineCurve3(new THREE.Vector3(0, 100, 0), new THREE.Vector

◆
```

三维二次贝塞尔曲线生成管道几何体

```
// p1、p2、p3表示三个点坐标

const p1 = new THREE.Vector3(-80, 0, 0);

const p2 = new THREE.Vector3(20, 100, 0);

const p3 = new THREE.Vector3(80, 0, 100);

// 三维二次贝赛尔曲线

const path = new THREE.QuadraticBezierCurve3(p1, p2, p3);
```

CurvePath多段路径生成管道案例

CurvePath 组合曲线,也可以作为 TubeGeometry 的参数1,用于生成管道几何体。

下面组合曲线CurvePath是由一段三维贝塞尔曲线 QuadraticBezierCurve3 加上两段3D直线 LineCurve3 拼接组成。

```
// 创建多段线条的顶点数据

const p1 = new THREE.Vector3(0, 0,100)

const p2 = new THREE.Vector3(0, 0,30);

const p3 = new THREE.Vector3(0, 0,0);

const p4 = new THREE.Vector3(30, 0, 0);

const p5 = new THREE.Vector3(100, 0, 0);

// 1. 3D直线线段

const line1 = new THREE.LineCurve3(p1, p2);
```

← 8. 组合曲线CurvePath拼接曲线

10. 旋转成型LatheGeometry→

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