

# User Manual 3.4.1 Infinite rectangle cone

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### Definition

The infinite rectangle cones (infinite pyramids) are defined in a 3D space by their origin, their axis, a local frame (giving the orientation of the rectangle) and the two half angles :



### Implementation

The InfiniteRectangleCylinder object in the SIRIUS library implements the [MAT\_GEO\_InfiniteConeInterface InfiniteCone Interface]. Please refer to the [Javadoc](#) for a complete list of public methods.

### Instantiation

The object is built from three vectors (Vector3D) and two doubles :

```
Vector3D originCone = new Vector3D(1.0, 1.0, 1.0);  
Vector3D axis = new Vector3D(2.0, 0.0, 0.0);  
Vector3D inputVectorU = new Vector3D(0.0, 1.0, 0.0);  
double angleU = FastMath.PI / 4.0;  
double angleV = FastMath.PI / 4.0;
```

```
InfiniteRectangleCone cone = new InfiniteRectangleCone(originCone, axis,  
inputVectorU, angleU, angleV);
```

The local frame is built such as :

- The axis is the W vector
- U is orthogonal to W and its direction is defined by the 'input U vector'
- V completes the frame

## Usage

Please refer to the [MAT\_GEO\_Home#HInteractions Interactions with other geometrical objects section] for methods inherited from the Shape interface.

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