SCENE

Table

- *PlaneGeometry*

  - static as floor

- *MeshBasicMaterial*

  - *table texture style*

Candle

- Hand crafted in blender

- imported with LoadingManager

  - positioned on the table

Flame

- BufferGeometry
  - defined as a set of N vertices with *attributes*:

    - position
    - customSize
    - customAngle
    - timeOffset

- ShaderMaterial
  - move positions per flame-like shaping
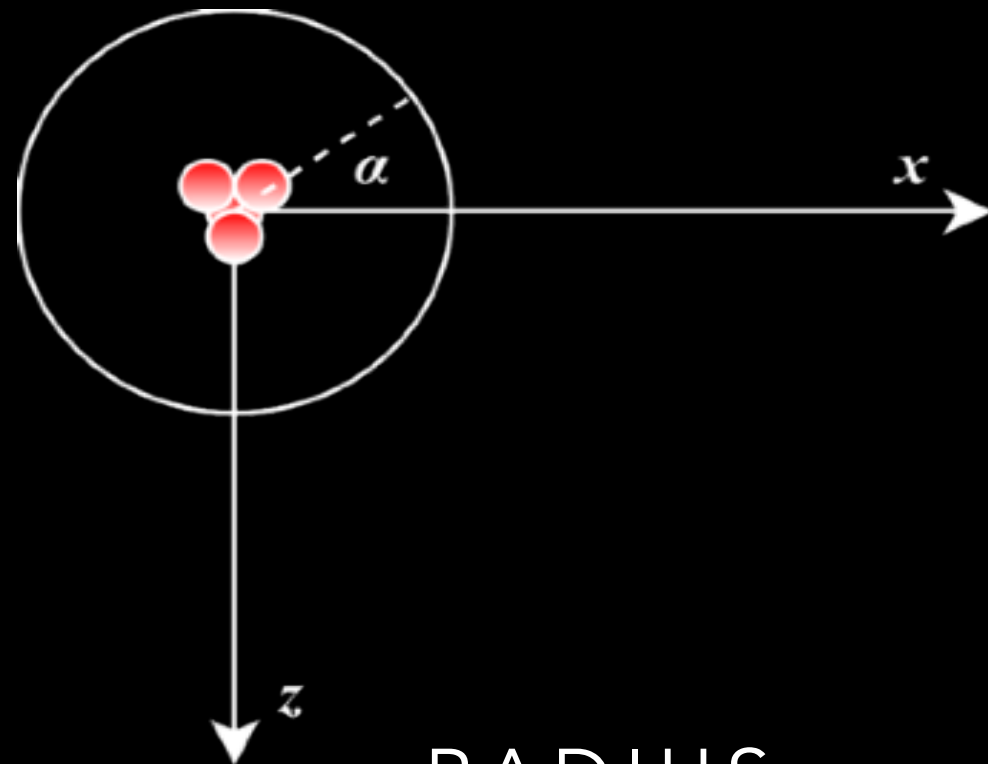 - texturing
  - color gradient

Smoke

- BufferGeometry
  - defined as a set of N vertices with *attributes*:

    - position
    - customSize
    - customAngle
    - timeOffset

- ShaderMaterial
  - move positions per smoke-like shaping
  - texturing
  - color gradient

FLAME FORMULATION

- All N vertices start at same position at *t=0*

- Each one has a random angle $\alpha \in (0,360)$

- Radius follows a curve obtained by regression on a set of hand picked points, depending on the time t. Radius also has a random component used to fill the flame.

- New position at *t=t1* follows equation:
  $y = t$
  $x = \cos(\alpha)*r$
  $z = \sin(\alpha)*r$

RADIUS