ATLAS Tracer
Engine and functionalities

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Overview

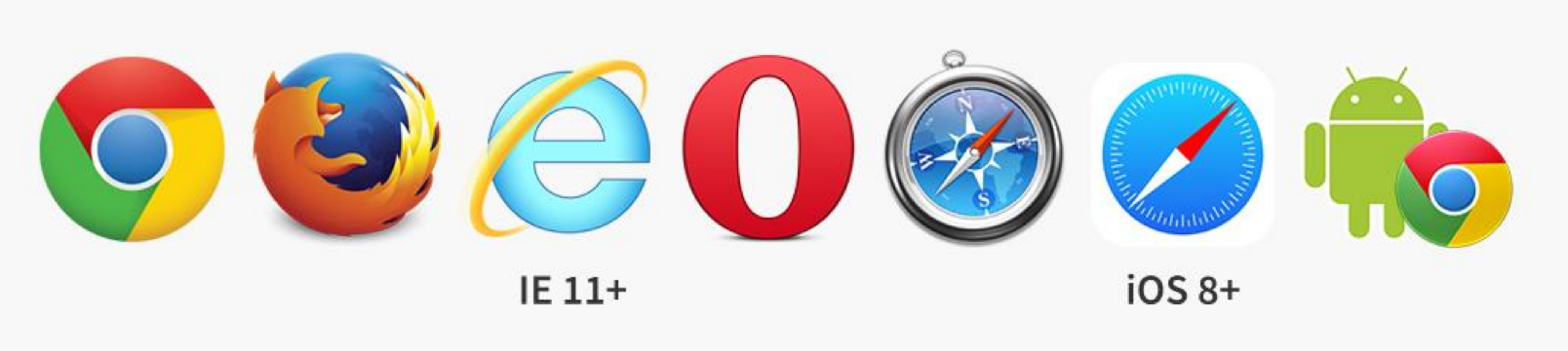
- ❑ About Engine
  - ▪ About WebGL
  - ▪ About three.js
- ❑ Three.js possibilities
- ❑ Engine possibilities

About Engine

WebGL

JavaScript API for rendering interactive 2D and 3D graphics inside an HTML <canvas> element.

Browser Support



About Engine

Three.js

ATLAS Tracer is using three.js (Javascript)

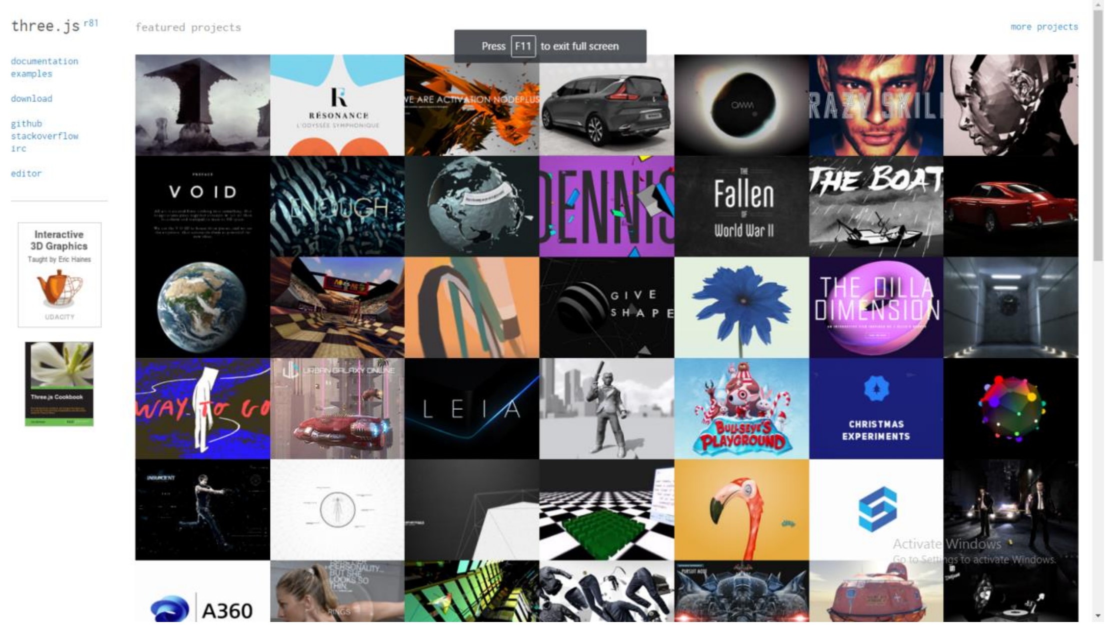
three.js

three.js is WebGL based library.
Which gives opportunity to display 3D objects in web browser.

http://threejs.org/

About Engine

Three.js



Three.js can use an HTML <canvas>, <svg> elements to show and interact 3D graphics

It can render Scenes, cameras, geometry, 3D model loaders, lights, materials, shaders, particles, animation, math utilities

About Engine

Three.js

Javascript

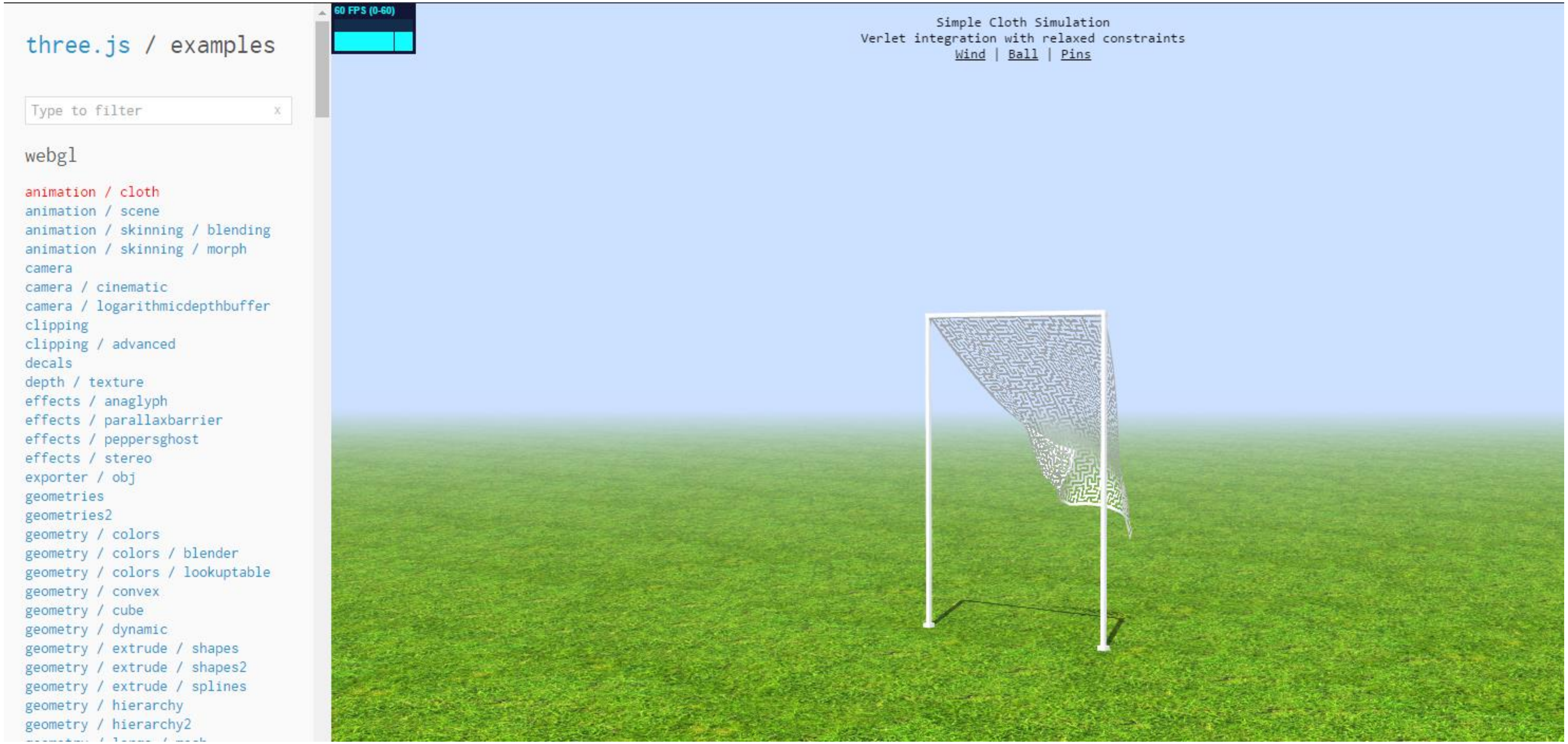
```
container = $("#vrmlPart1")[0];
canvas = $("#vrmlPart1 > canvas")[0];
canvasPosition = $(canvas).position();
renderer = new THREE.WebGLRenderer(…);
```

HTML

```
<html>
  <body>

    <div id="vrmlPart1" style="display:block">
      <canvas></canvas>
    </div>

  </body>
</html>
```

About Engine

Three.js Examples



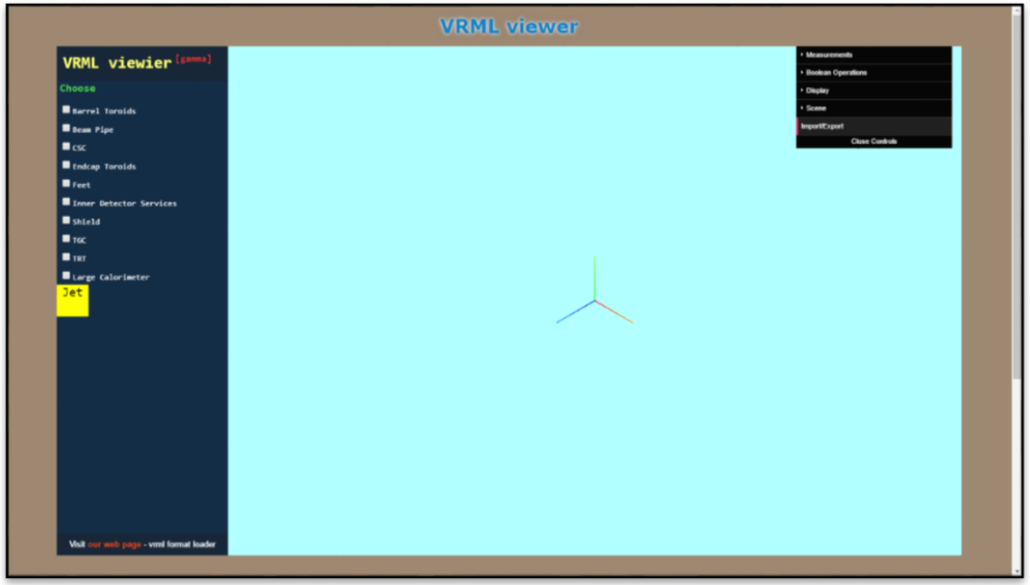
three.js / examples

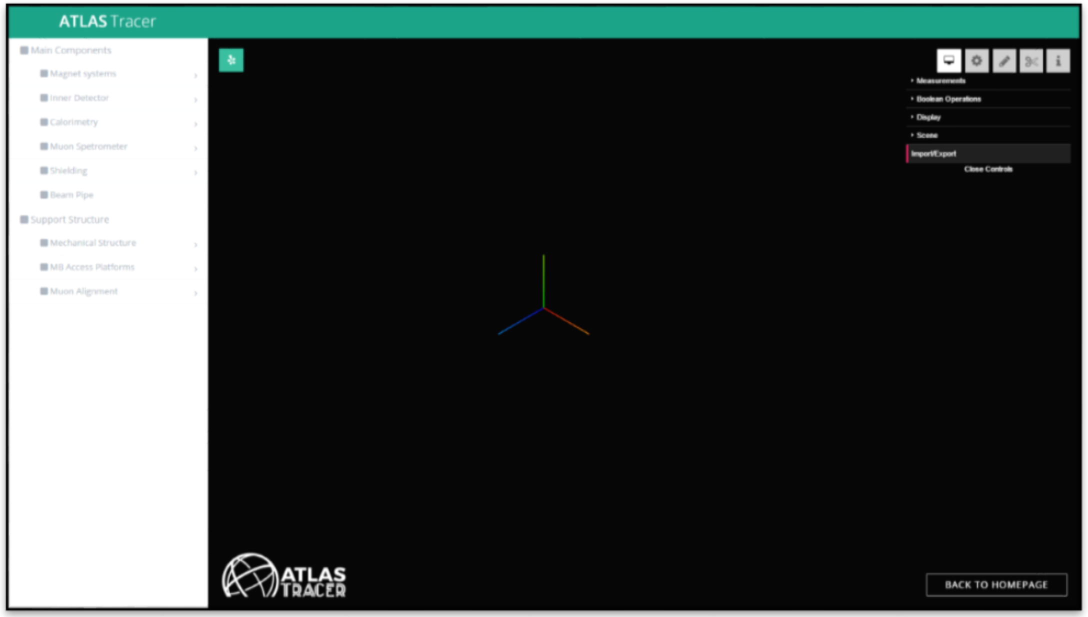
Type to filter x

webgl

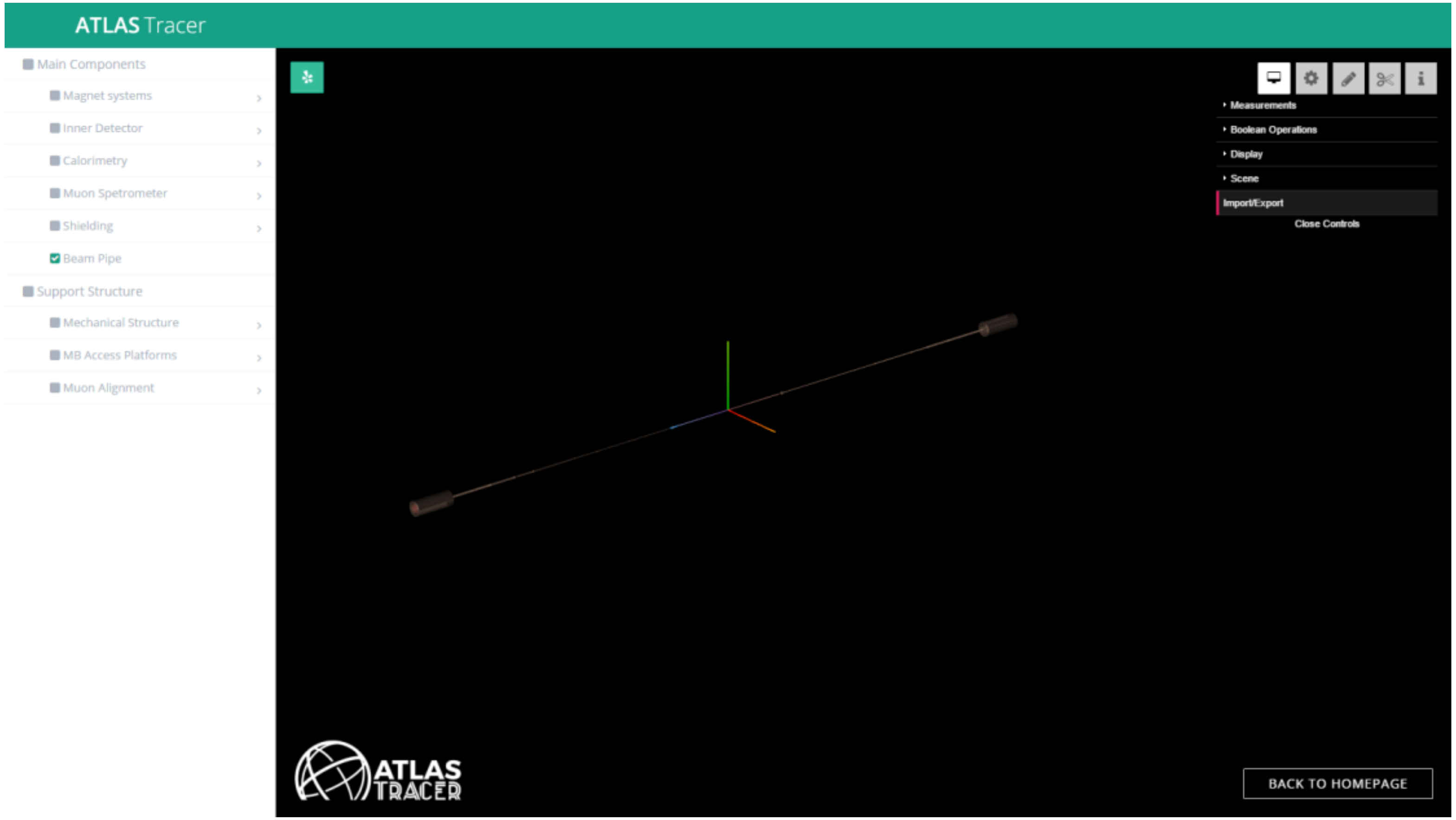
animation / cloth
animation / scene
animation / skinning / blending
animation / skinning / morph
camera
camera / cinematic
camera / logarithmicdepthbuffer
clipping
clipping / advanced
decals
depth / texture
effects / anaglyph
effects / parallaxbarrier
effects / peppersghost
effects / stereo
exporter / obj
geometries
geometries2
geometry / colors
geometry / colors / blender
geometry / colors / lookuptable
geometry / convex
geometry / cube
geometry / dynamic
geometry / extrude / shapes
geometry / extrude / shapes2
geometry / extrude / splines
geometry / hierarchy
geometry / hierarchy2

Simple Cloth Simulation
Verlet integration with relaxed constraints
Wind | Ball | Pins


VRML viewer
VRML viewier [gamma]
Choose
□ Barrel Toroids
□ Beam Pipe
□ CSC
□ Endcap Toroids
□ Feet
□ Inner Detector Services
□ Shield
□ TGC
□ TRT
□ Large Calorimeter
Jet
Visit our web page - vrml format loader
Measurements
Boolean Operations
Display
Scene
Import/Export
Close Controls

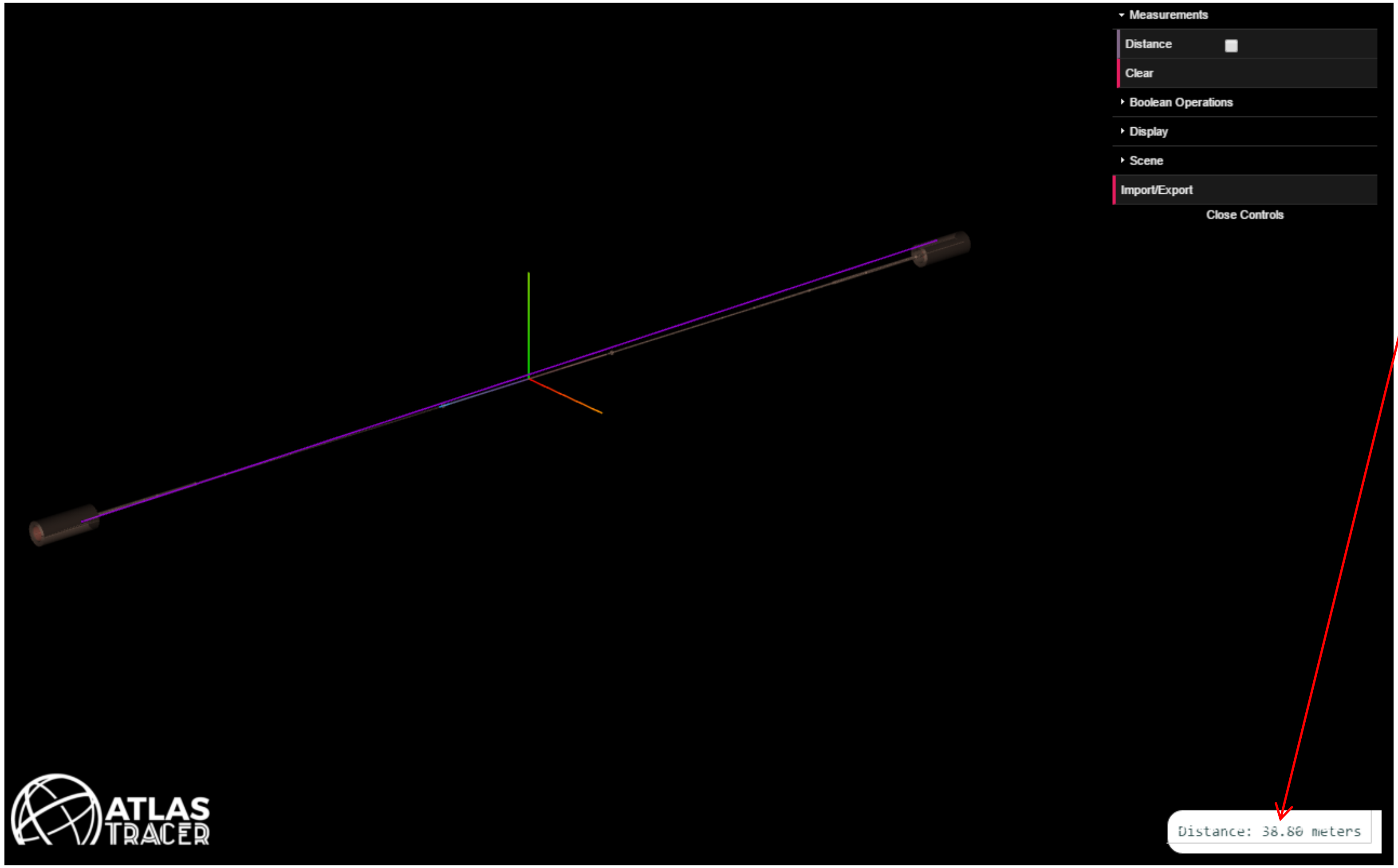

ATLAS Tracer
Main Components
Magnet systems
Inner Detector
Calorimetry
Muon Spetrometer
Shielding
Beam Pipe
Support Structure
Mechanical Structure
MB Access Platforms
Muon Alignment
Measurements
Boolean Operations
Display
Scene
Import/Export
Close Controls
ATLAS TRACER
BACK TO HOMEPAGE

Engine possibilities



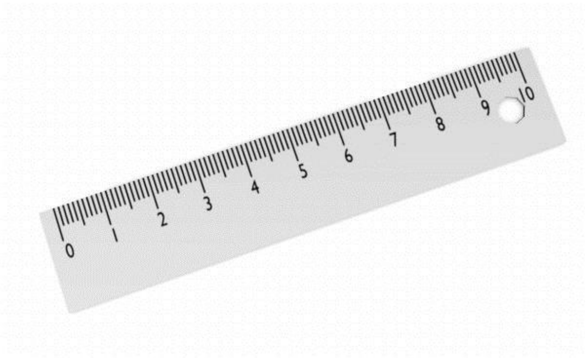
Loading and manipulating 3D objects

Engine possibilities

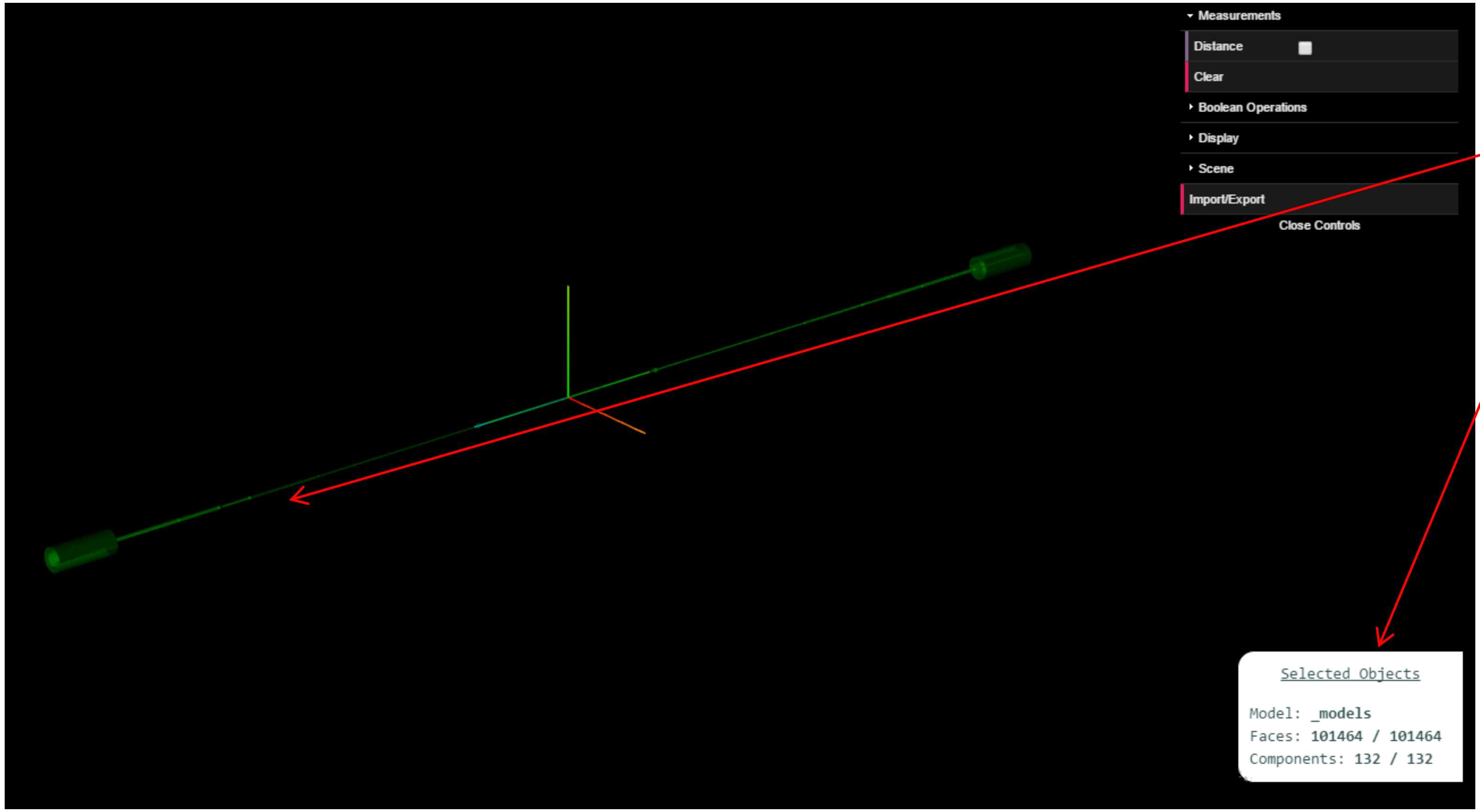


```
Distance: 38.80 meters
```

Distance measurement



Engine possibilities



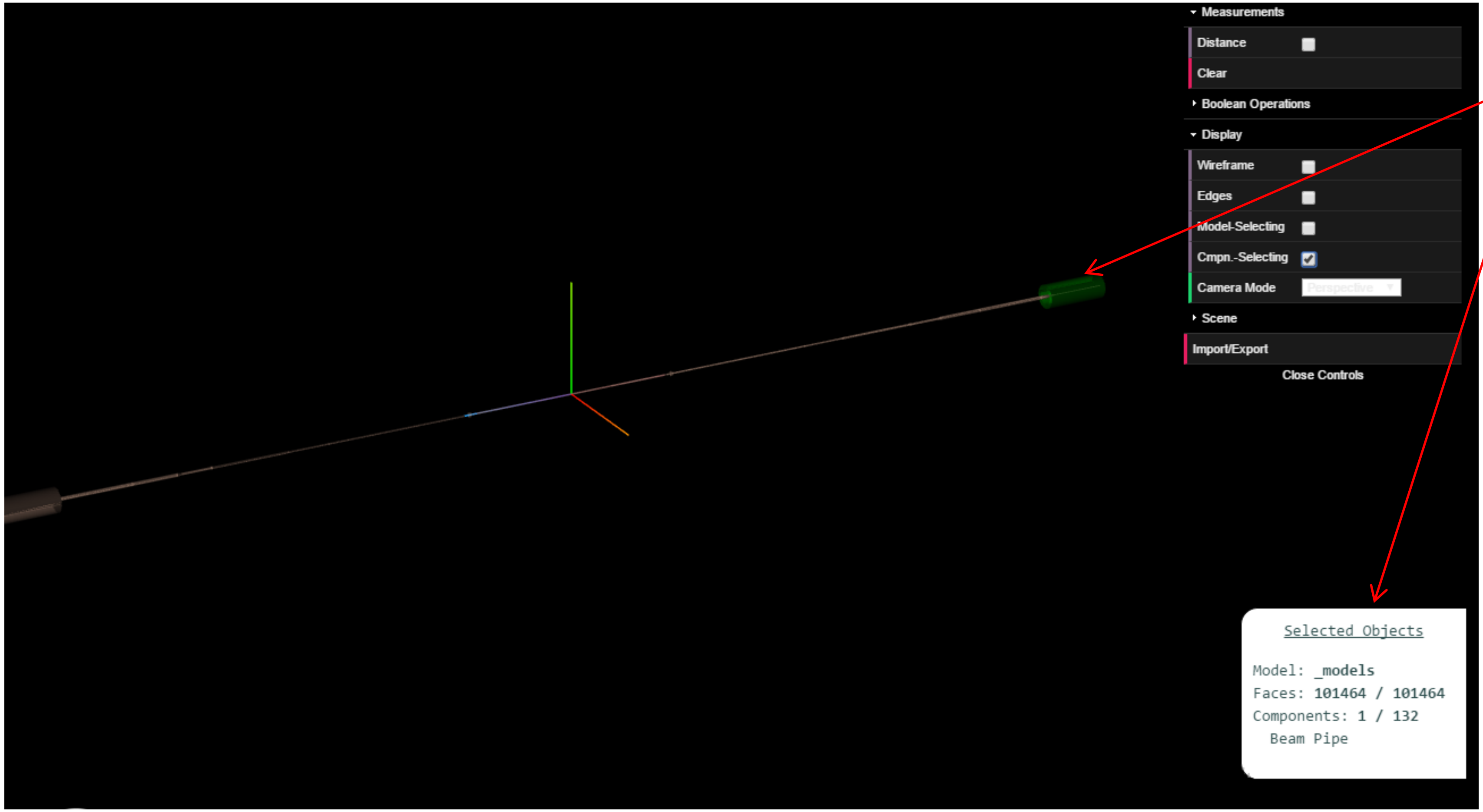
Selected Objects

Model: _models
Faces: 101464 / 101464
Components: 132 / 132

Model selecting

- Selected faces/number of faces
- Selected components/number of components

Engine possibilities



Distance □

Wireframe □

Edges □

Model-Selecting □

Cmpn.-Selecting ☑

Camera Mode Perspective

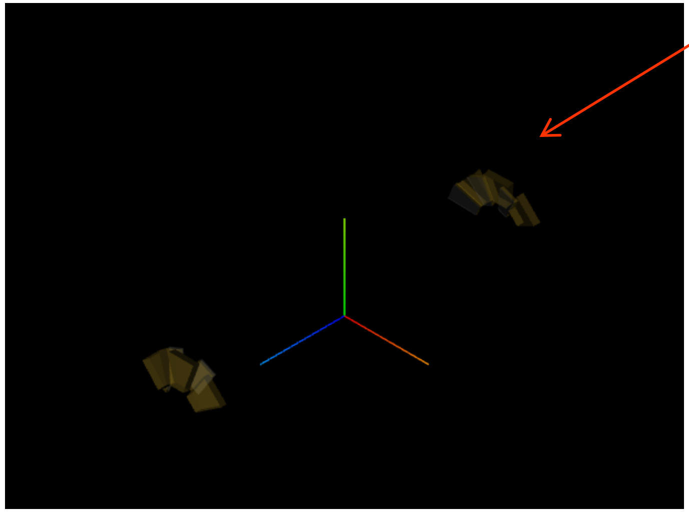
```
Selected Objects

Model: _models
Faces: 101464 / 101464
Components: 1 / 132
  Beam Pipe
```

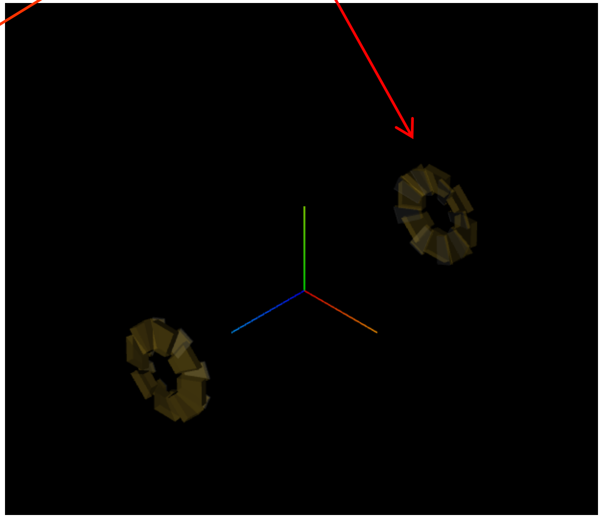
Component selecting

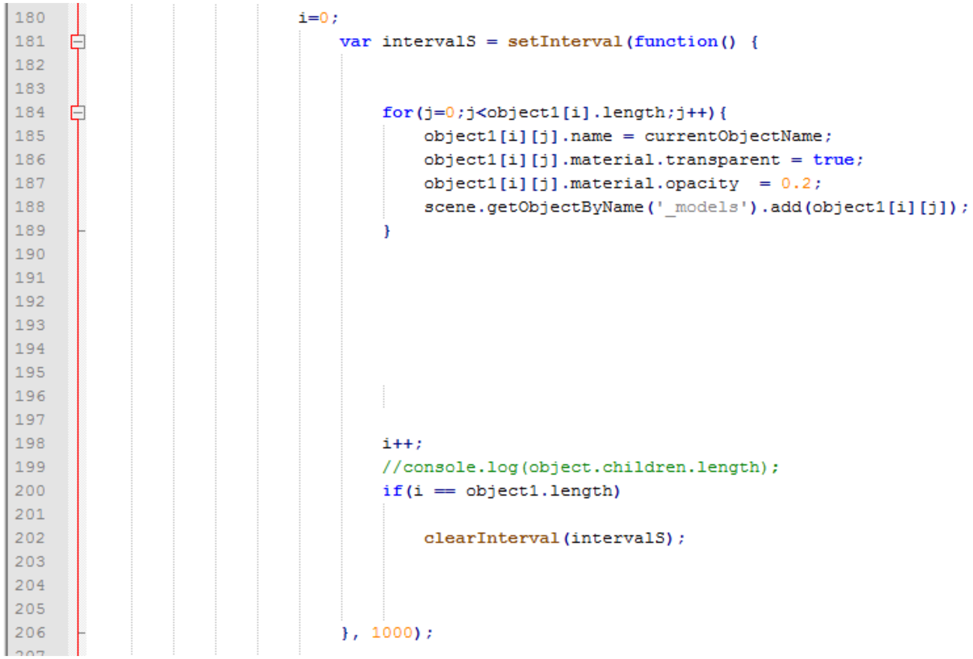
- •Selected faces/number of faces
- •Selected components/number of components

Engine possibilities

Loading Animation

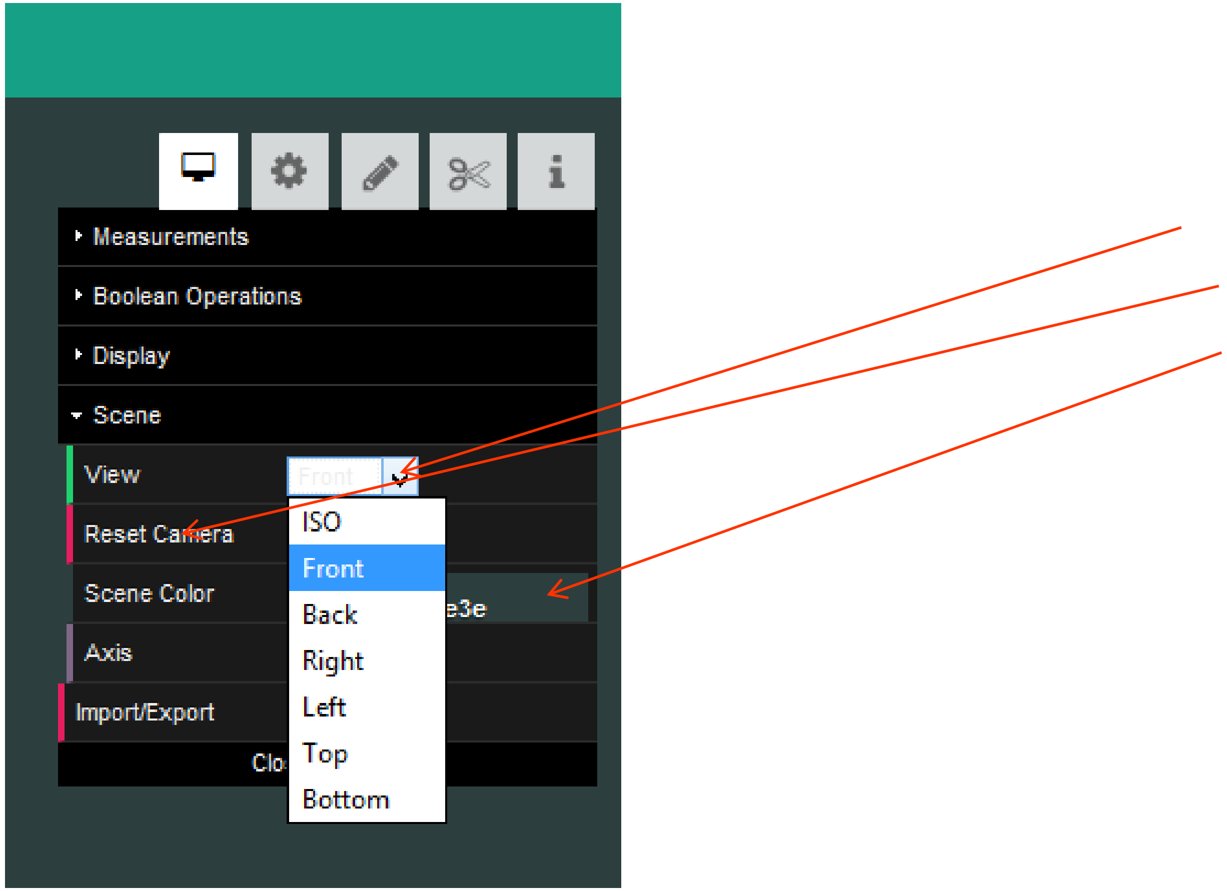






```
i=0;
    var intervalS = setInterval(function() {


        for(j=0;j<object1[i].length;j++){
            object1[i][j].name = currentObjectName;
            object1[i][j].material.transparent = true;
            object1[i][j].material.opacity  = 0.2;
            scene.getObjectByName('_models').add(object1[i][j]);
        }








        i++;
        //console.log(object.children.length);
        if(i == object1.length)

            clearInterval(intervalS);



    }, 1000);
```

Engine possibilities



Scene

Thank you for your attention