

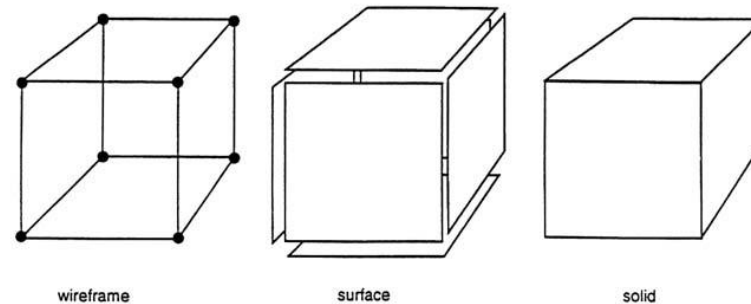
Development of Simplified Geometry Descriptions of ATLAS Detector for ATLAS Tracer

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How can we visualize 3D models in web

- ❑ We can use Three.js functions but it is time consuming and almost impossible to keep the complexity of detector components
- ❑ We can import geometries from already existing engineering database (SmarTeam) and we can use geometries Used in simulation packages (Geant4)





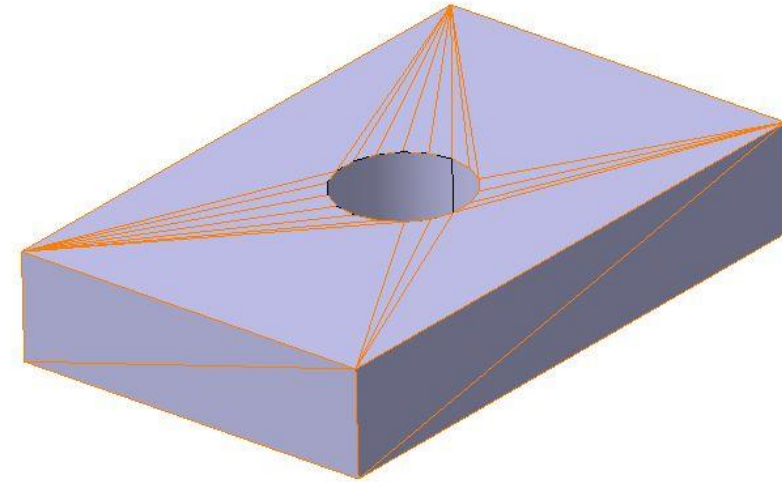
Aw, Snap!

Something went wrong while displaying this webpage. To continue, reload or go to another page.

If you're seeing this frequently, try these [suggestions](#).

After some further research we found out following:

- ❑ It was caused by amount of **faces** - flat surface that forms part of the boundary of a solid object
- ❑ The limit of faces that single tab of browser could handle is limited



Ways to solve problem:

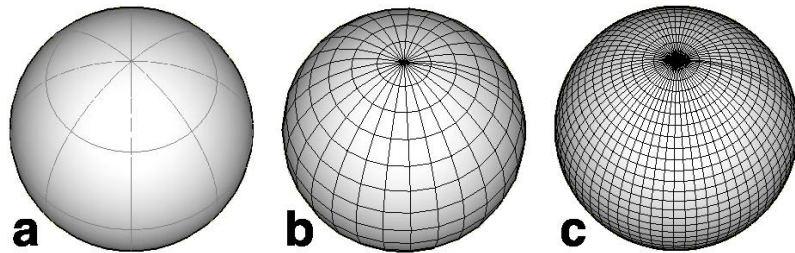
- Drop the idea of having web application

OR

- Simplify geometry descriptions so that all of them wouldn't exceed limits



Method:



- Decreasing accuracy of circles or removing them if possible
- Remove all the inner cuts from geometries
- Removing every single small detail that would not damage overall look of the geometry like small blats, screws etc.

Life Cycle



.WRL

Catia is the platform we use to analyze, simplify and cut objects



.WRL

AcuTrans is used to merge layers of the geometry and resave it in new format



three.js

.JSON

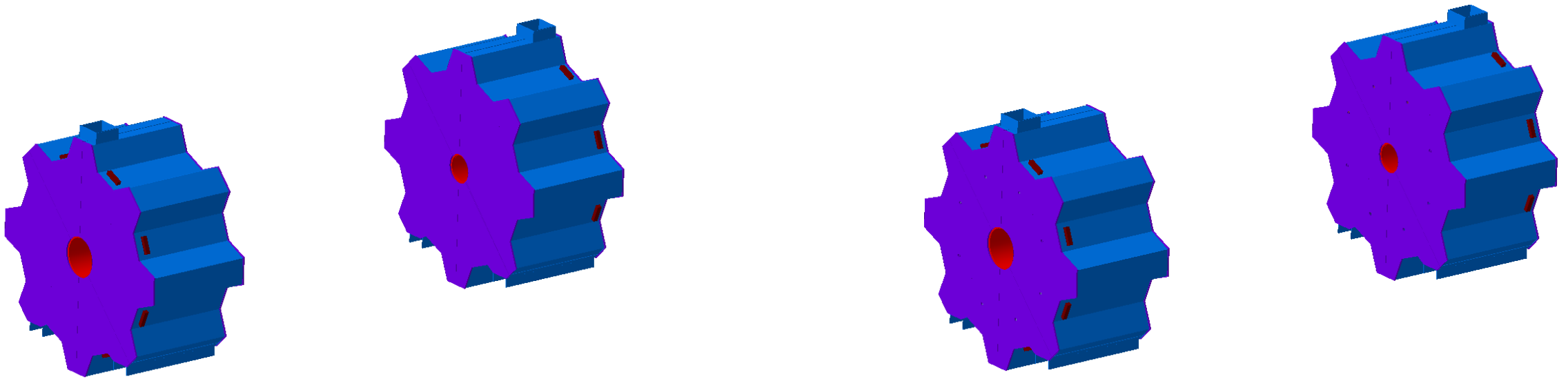
Three.js has function that can convert WRL to JSON



ATLAS Tracer



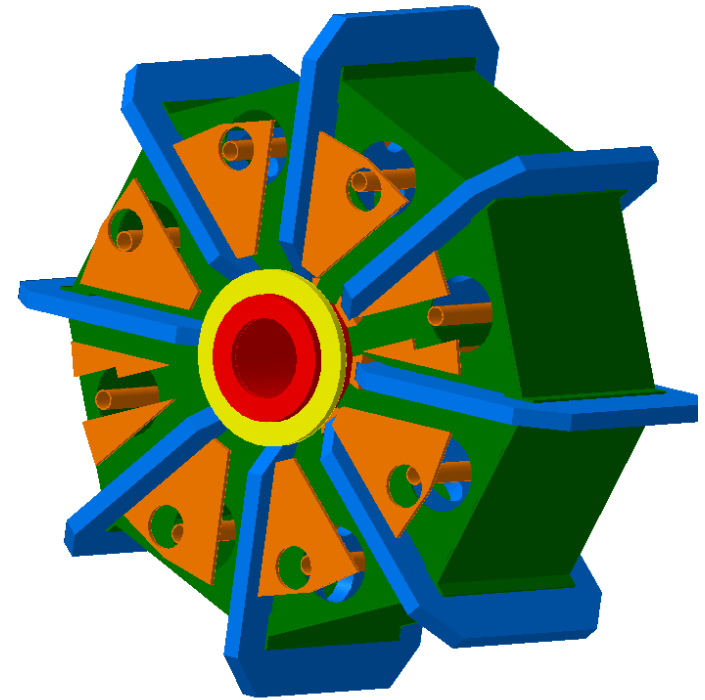
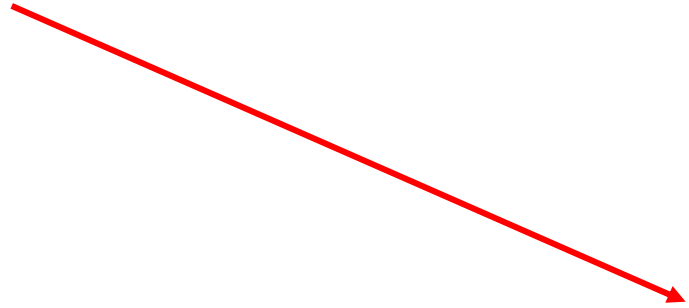
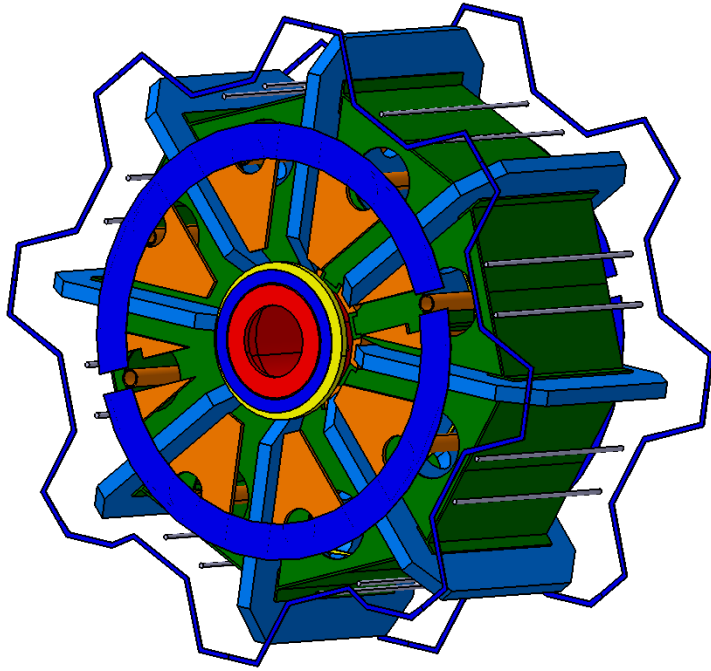
Endcap Toroid



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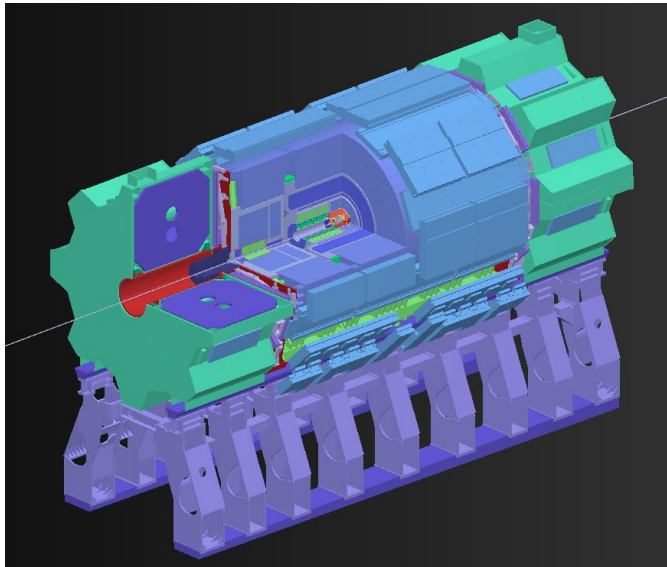
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Future Plans

We are just halfway through



1	Tile endcap	Done
2	Tile barrel	Done
3	Muon Small wheel endcap	Done
4	Toroid magnet endcap	Done
5	Feets	Done
6	Muon inner barrel	Done
7	Muon middle barrel	Done
8	Muon outer barrel	
9	Toroid magnet barrel	
10	warm structure	
11	Muon extra wheel endcap	
12	Muon big wheel endcap	
13	Muon outhor wheel endcap	

Thank you for Your attention

