Compare Analysis between <u>as-built</u> geometry and <u>Geant4</u> Description

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Georgian Technical university

Status of Agreement AA366/10

Apr 25, 2019

To-Do list for WP2

<u>To-Do list</u>

Completed:

1. Flexible Chain in Sector 9

Current:

2. Feet and additional boxes

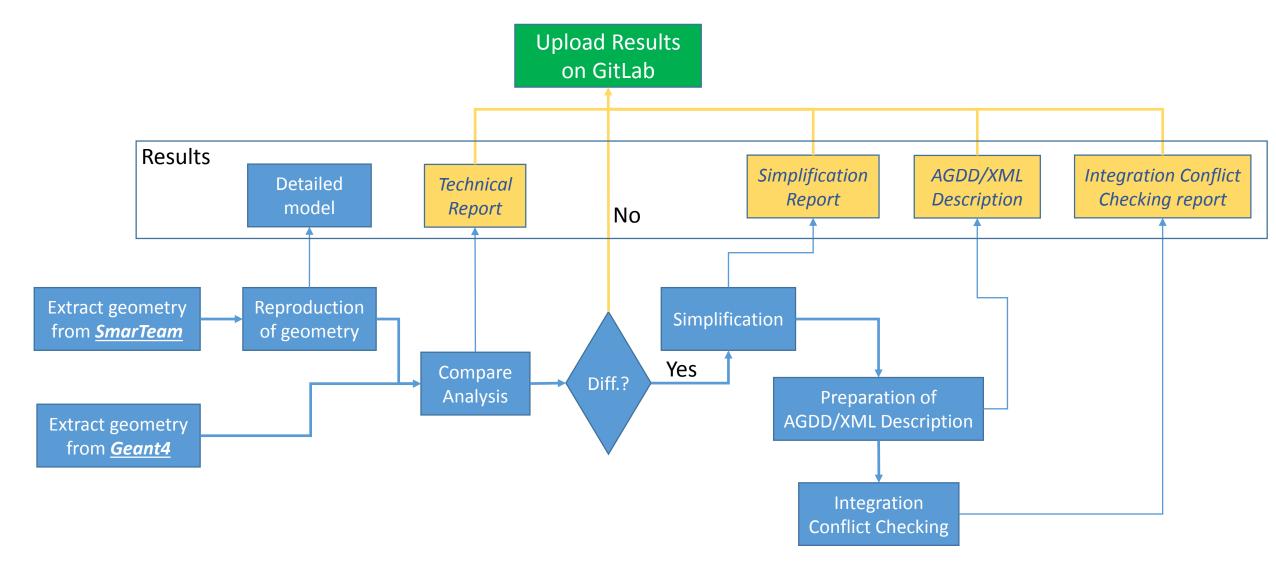
Upcoming:

- 3. CALO Services
- 4. Services of Magnet system in sector 7
- 5. JD Services in Sectors 7 and 9
- 6. Platforms in sectors 5 and 13

Deliverables:

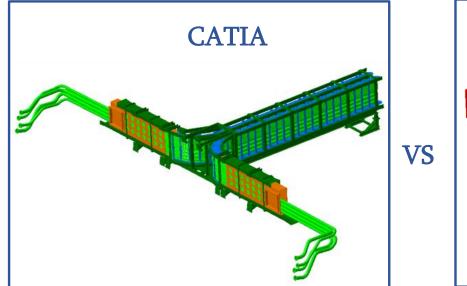
- 1. Technical report of compare analysis between as-built and geant4 description
- 2. Technical report of Simplification
- 3. AGDD/XML Description
- 4. Technical report of Integration Conflict Checking

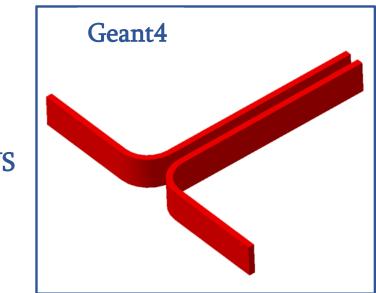
Life Cycle of Compare analyses

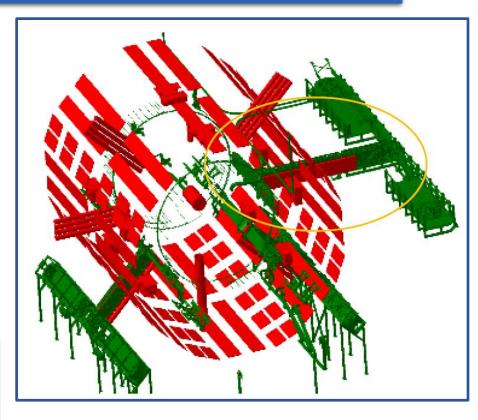


To-Do list

- 1. Flexible Chain in Sector 9
- 2. Feet and additional boxes
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- 6. Platforms in sectors 5 and 13







More than 3 months for reproduction of detailed model

To-Do list CATIA Geant Difference 11'877 kgs 1'968 kgs 83.4% Support 1 **Drag Chain** 1'608 kgs - 100% - kgs Flexible Chain in Sector 9 1. 680 kgs **Towing Arm** - kgs - 100% **Pipes** 172 kgs - 100% 4 - kgs Feet and additional boxes 2. Cables 5 825 kgs - kgs - 100% **CALO Services** 3. **Total** 5'253 11'877 97% Services of Magnet system in sector 7 4. 5. JD Services in Sectors 7 and 9 Platforms in sectors 5 and 13 6. **CATIA** Geant4 Volume (m³) 0.6456 Volume (m³) 4.399 Mass (kg) 5'253 11'877.3 Mass (kg) **Stainless Steel/Cooper** Material **Material** Aluminum Density (kg/m³) 8'000/8960 5 Density (kg/m³) 2'700

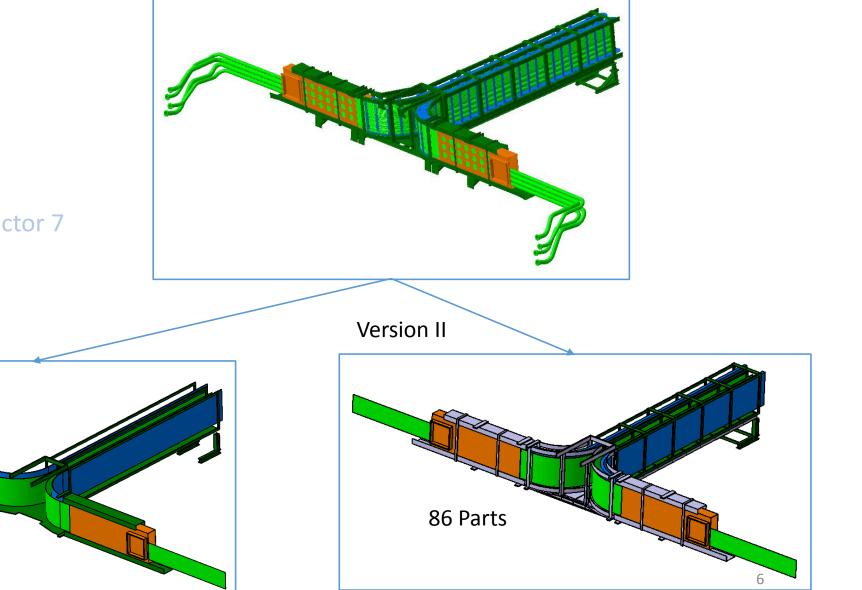
To-Do list

- 1. Flexible Chain in Sector 9
- 2. Feet and additional boxes
- 3. CALO Services
- 4. Services of Magnet system in sector 7

Version I

35 Parts

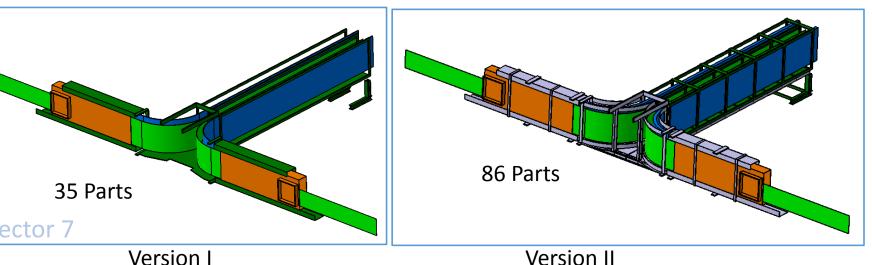
- 5. JD Services in Sectors 7 and 9
- 6. Platforms in sectors 5 and 13



To-Do list

- 1. Flexible Chain in Sector 9
- 2. Feet and additional boxes
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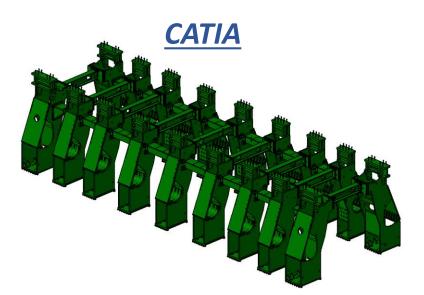


The results were reviewed at Muon Software meeting in March

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Current. Compare analyses of *Feet and additional boxes*

- 1. Flexible Chain in Sector 9
- 2. Feet and additional boxes
- 3. CALO Services
- 4. Services of Magnet system in sector 7
- 5. JD Services in Sectors 7 and 9
- 6. Platforms in sectors 5 and 13



		CATIA	Geant4	Difference
1	Standard Foot	213'248 kgs	186'401 kgs	-12.6 %
2	Extremity Foot	66'864 kgs	58'647 kgs	-12.3 %
3	Rail Support	31'944 kgs	31'448 kgs	-1.6 %
4	Extremity Rail Support	11'040 kgs	10'900 kgs	-1.3 %
5	Girder	24'096 kgs	18'305 kgs	-24 %
6	Extremity Girder	4'576 kgs	4′430 kgs	-3.2 %
7	FEET_Standard Strut	8′523.9 kgs	16'611 kgs	+48.7 %
8	FEET_Extremity Strut	24′48.9 kgs	4′427.5 kgs	+44.7 %
9	Bolts	3′912 kgs	- kgs	- 100 %
10	Slanted ConnPlate Bracket	- kgs	138 kgs	+ 100 %
	Total	366'652 kgs	331'307 kgs	34.84 %





Completed/Upcoming. Compare analyses of <u>CALO Services</u>

To-Do list

- 1. Flexible Chain in Sector 9
- 2. Feet and additional boxes

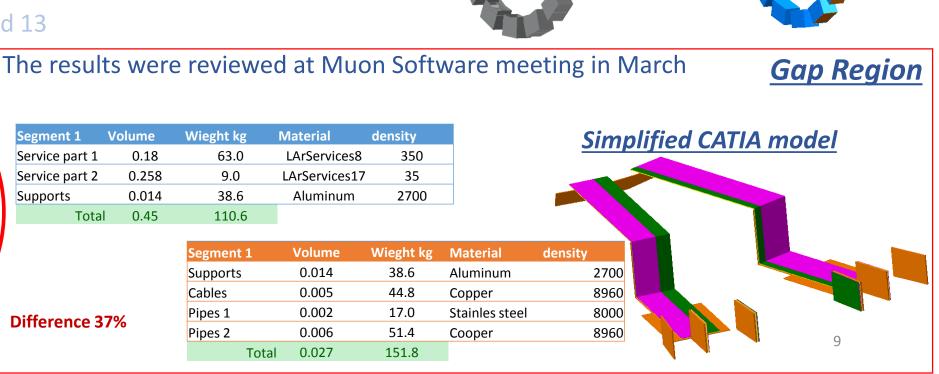
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Segment 1

Geant4





CATIA

Geant4

Part 1

Part 2

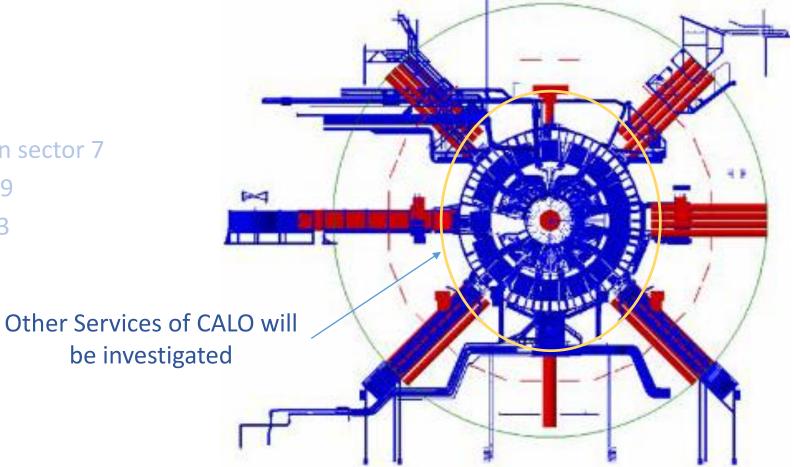
Completed/Upcoming. Compare analyses of <u>CALO Services</u>

To-Do list

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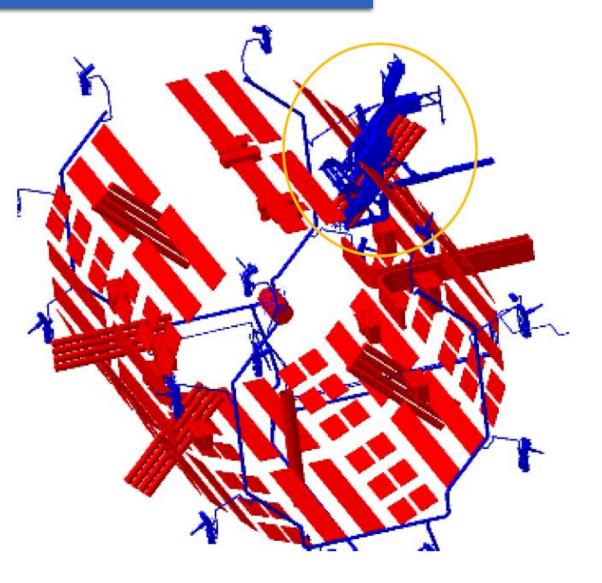
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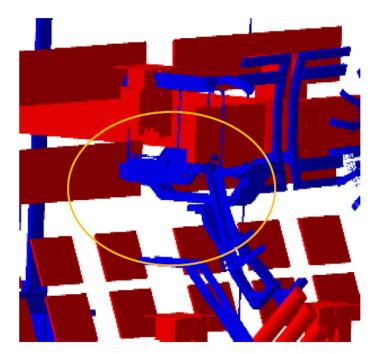
Upcoming. <u>Services of Magnet system in sector 7</u>

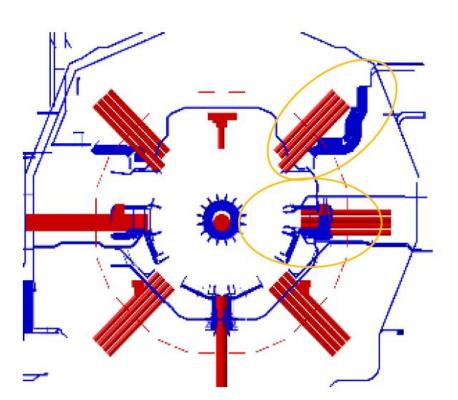
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Upcoming. JD Services in Sectors 7 and 9

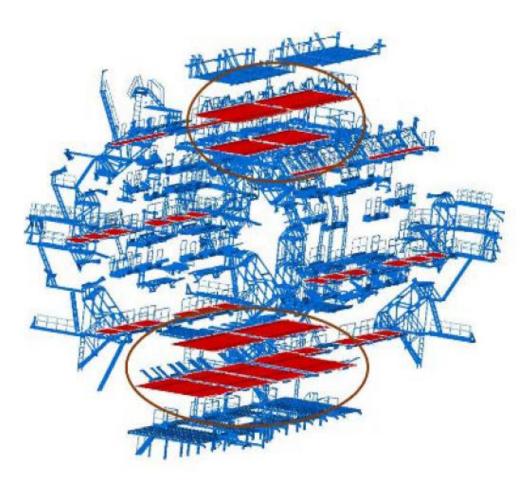
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Upcoming. <u>Platforms in sectors 5 and 13</u>

- 1. Flexible Chain in Sector 9
- 2. Feet and additional boxes
- 3. CALO Services
- 4. Services of Magnet system in sector 7
- 5. JD Services in Sectors 7 and 9
- 6. Platforms in sectors 5 and 13



Upcoming. Compare analysis of Active Parts of ATLAS Detector

<u>To-Do list</u>

- 1. Inner Detector -> Pixel Detector SCT Detector TRT
- 2. Calorimeters -> Large Calorimeter Tile Calorimeter
- 3. Muon Chambers ->
- Barrel Region 3 Layers ECT Region – 4 Layers



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2. Feet and additional boxes

Upcoming:

- 3. CALO Services
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- 5. JD Services in Sectors 7 and 9
- 6. Platforms in sectors 5 and 13

Manpower in Georgian Team:

1.5FTE - CATIA designers, programmers

Thank You for Your Attention!

მადლობთ ყურადღებისათვის!

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