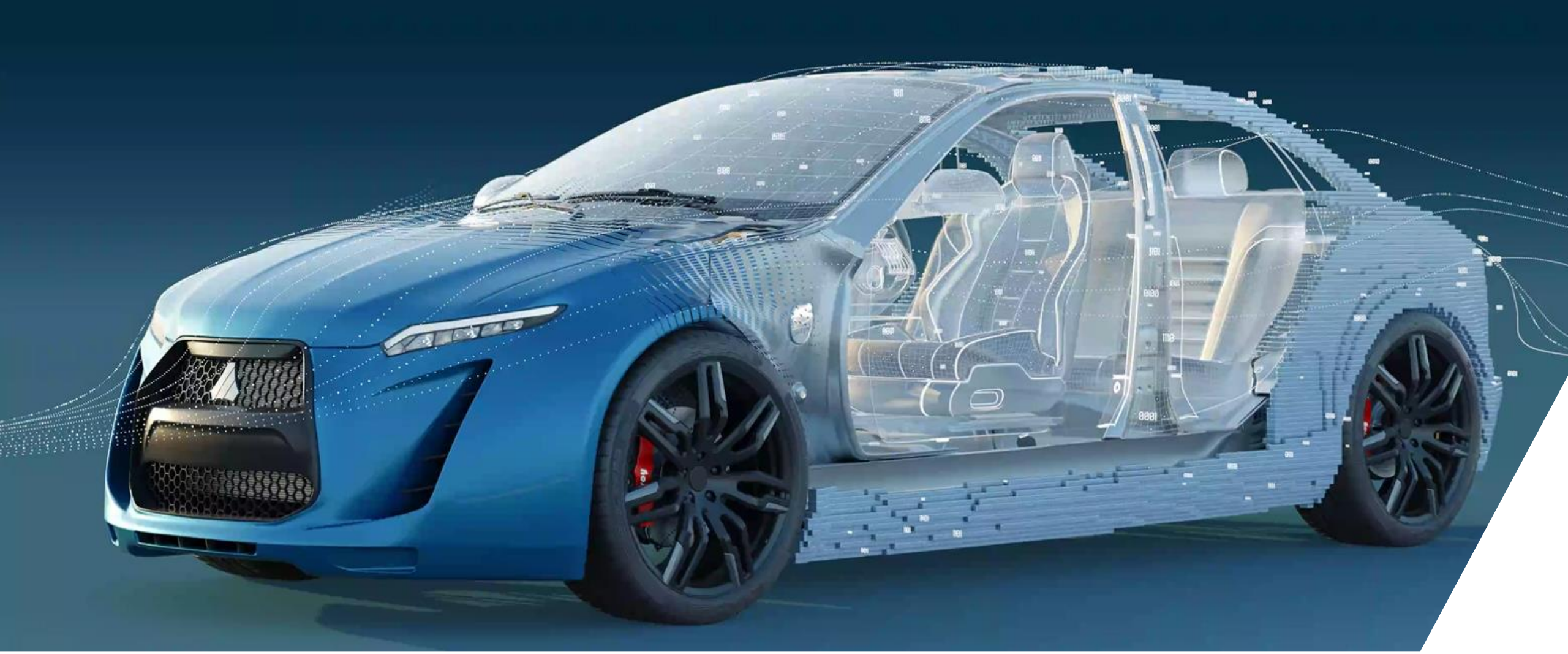

ALTAIR RADIOSS BASICS FOR EXPLICIT DYNAMIC ANALYSIS

RADIOSS AVAILABLE JOINTS (/PROP/TYPE45)

Polyvios Romanidis

2024

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RADIOSS JOINTS

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Types of Joints - /PROP/TYPE45 (KJOINT2)

Type	dx	dy	dz	θx	θy	θz
1 – Spherical	-	-	-	✓	✓	✓
2 – Revolute	-	-	-	✓	-	-
3 – Cylindrical	✓	-	-	✓	-	-
4 – Planar	-	✓	✓	✓	-	-
5 – Universal	-	-	-	-	✓	✓
6 – Translational	✓	-	-	-	-	-
7 - Oldham	-	✓	✓	-	-	-

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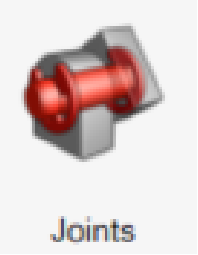
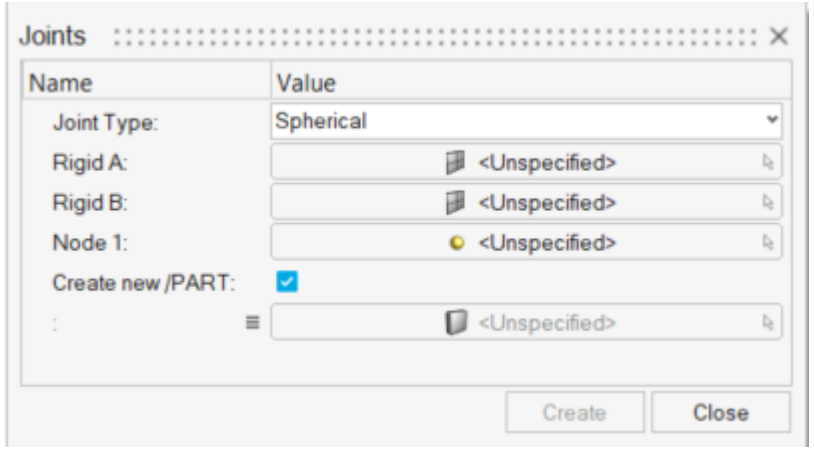
Insert Joint through HyperMesh

1. Create Rigid Bodies for the parts (or part ends) you want to connect
2. Create a node to define the exact point of joint
3. Go to **Model**…**Interactions**…**Joints**…
4. Select the rigids and the node to define the joint
5. Leave Create new /PART selection on to create a part for the joint containing the corresponding property





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EXAMPLE OF JOINTS

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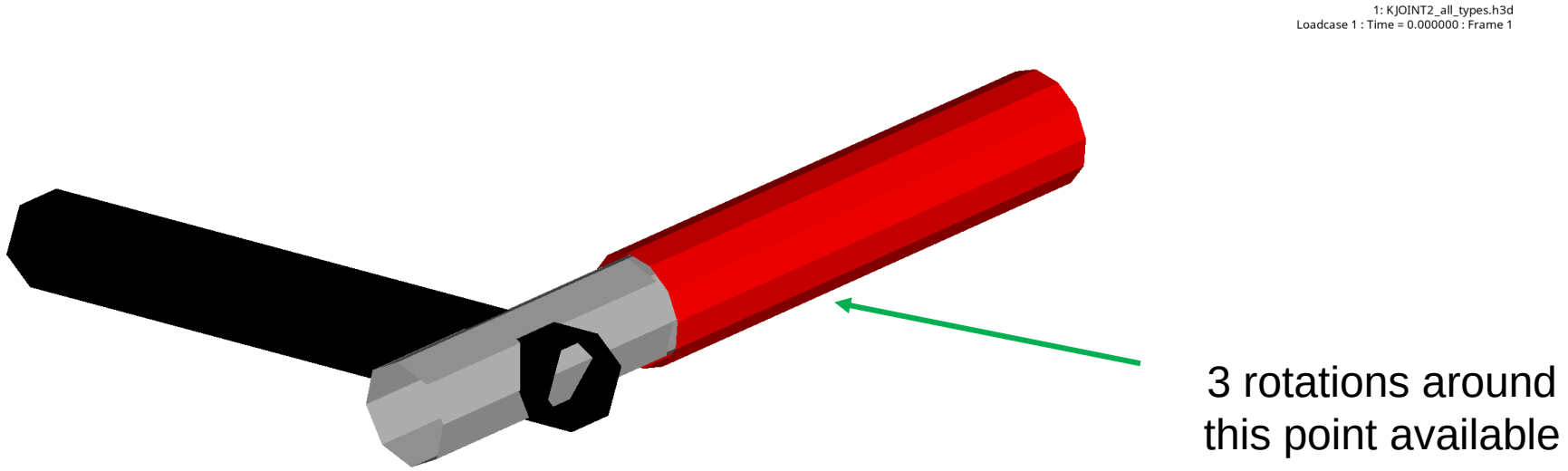
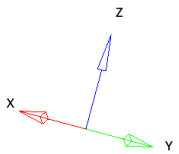
1 – Spherical Joint



3 rotations around this point available



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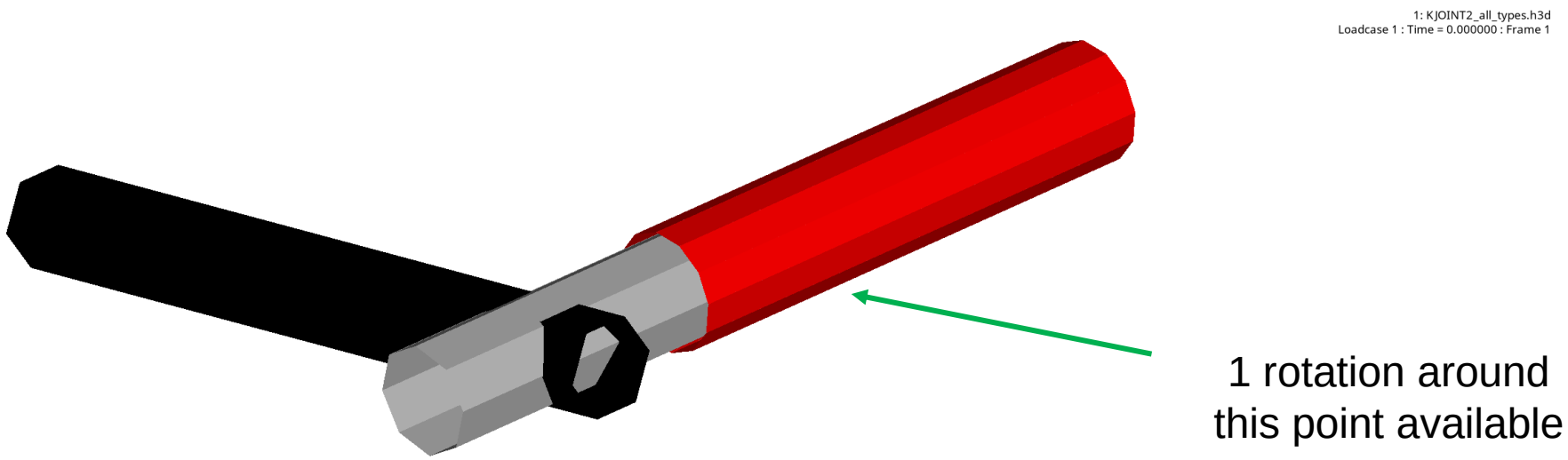
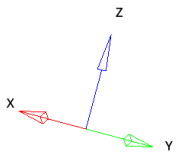
2 – Revolute Joint



1 rotation around this point available



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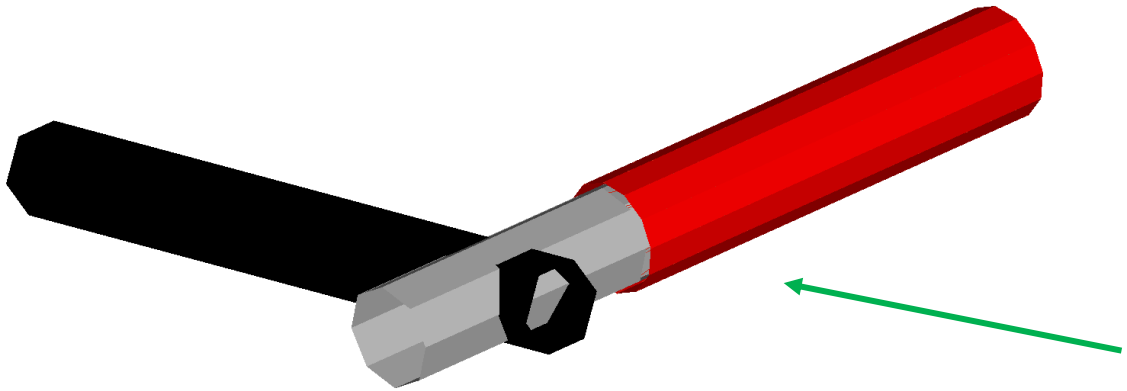
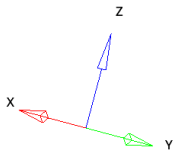
3 – Cylindrical Joint



1 rotation around this point available and translation parallel to axis of rotation



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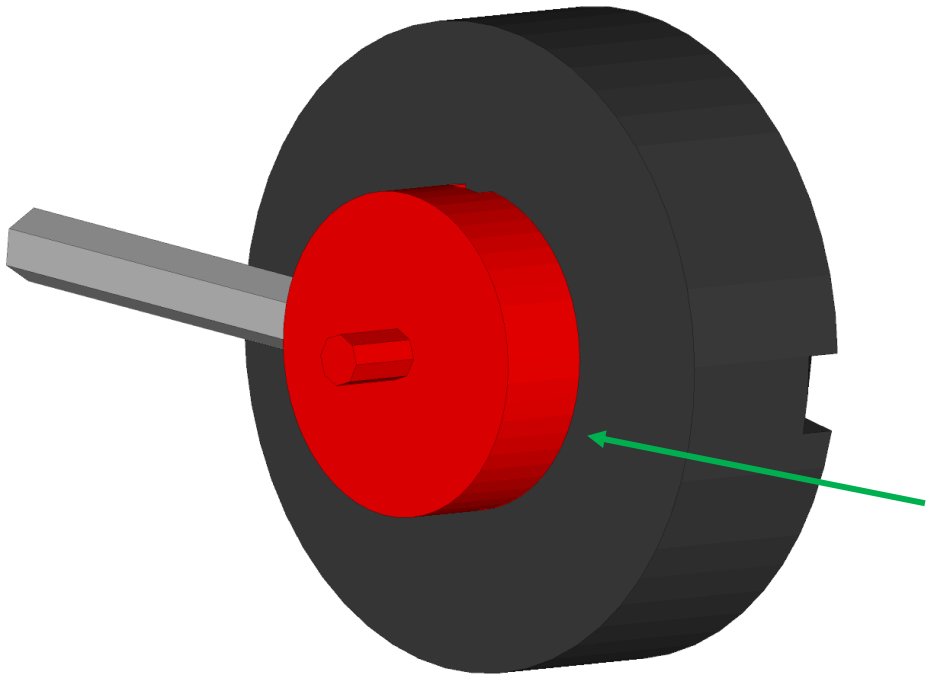
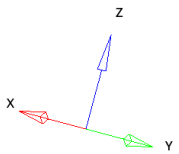
4 – Planar Joint



2 translation tangent to contact surface and a corresponding rotation available



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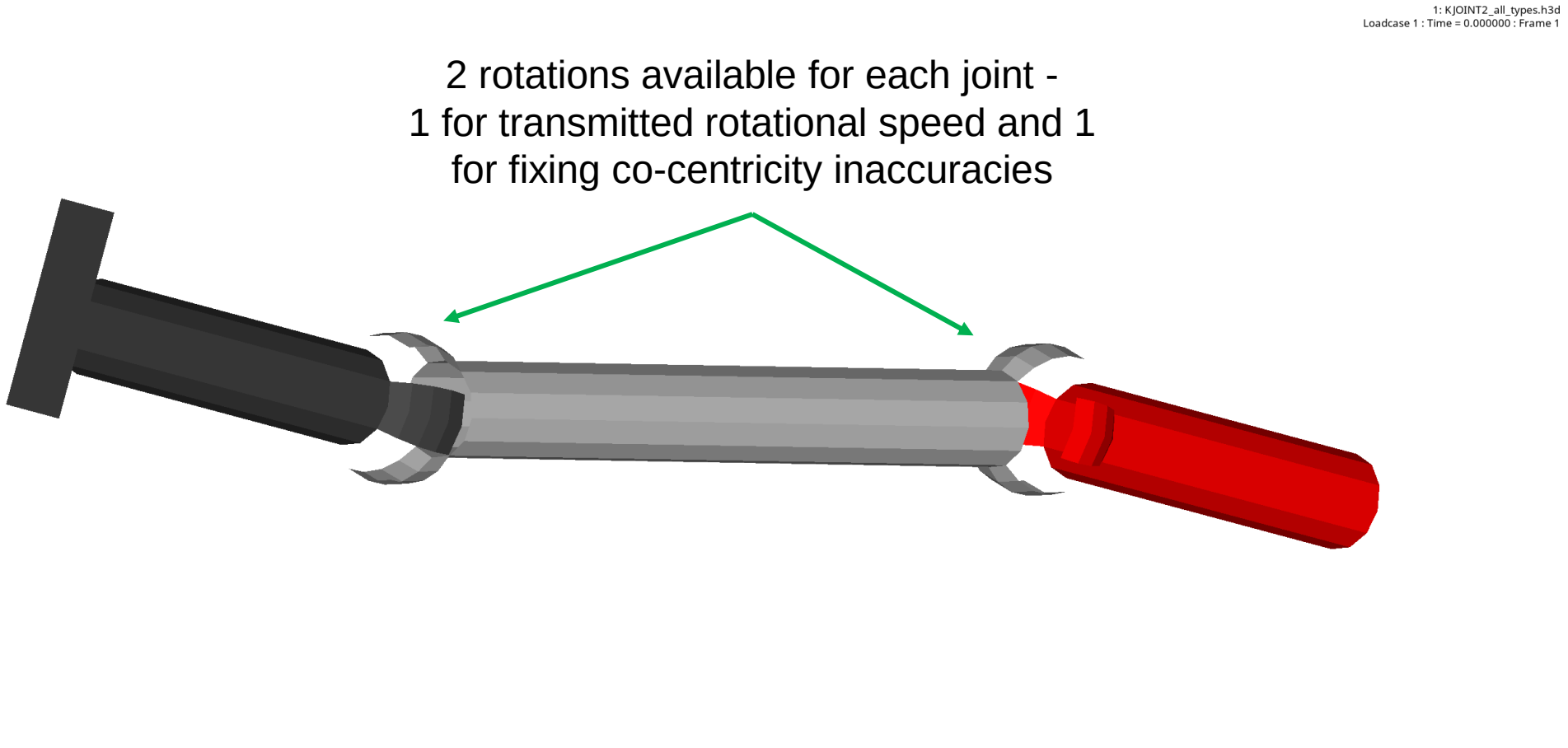
5 – Universal Joint



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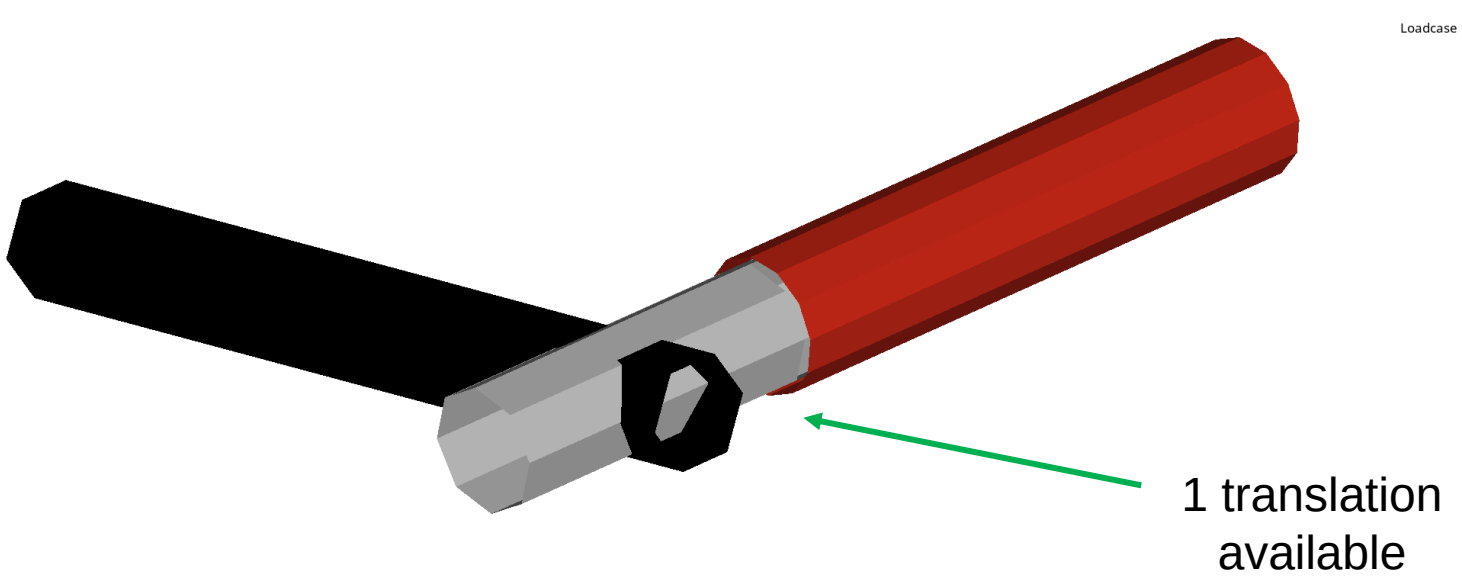
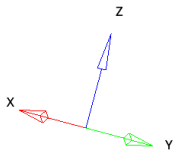
6 – Translational Joint





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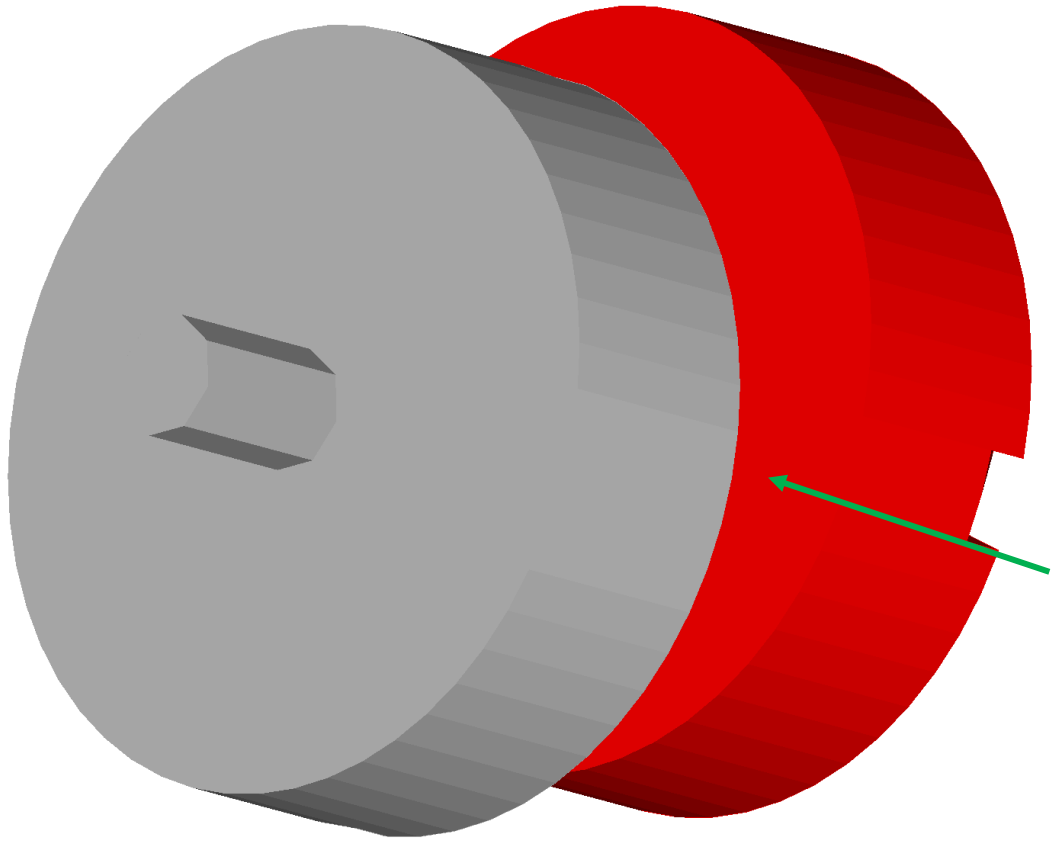
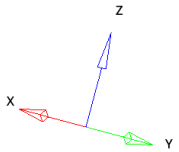
7 – Oldham Joint



2 translations available tangent to contact surface



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CONCLUSION

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Conclusion

1. Several type of joints can be introduced through Radioss
2. Each type of joint make available specific degrees of freedom (DoFs) between different parts
3. Joints correspond to kinematic conditions and hence specific forces applied through them to implement this behavior

THANK YOU

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