



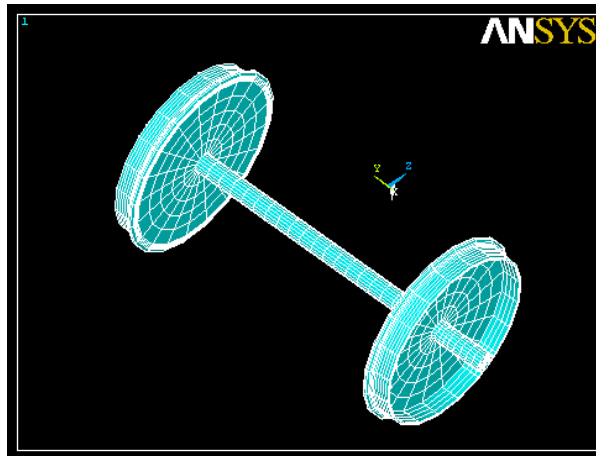
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APPLICATION EXAMPLE

Stress recovery analysis on Flexible Wheelset Bogie moving on a Flexible Rail



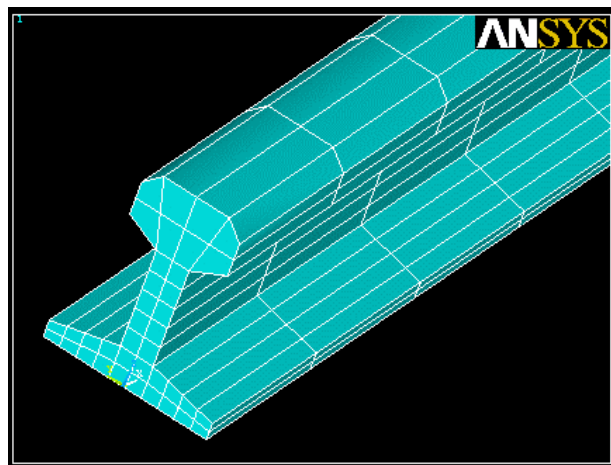
■ ANSYS 5.5 models:

◆ **Axle: 4700 nodes**

- 3700 Brick73 (6 dofs per node) elements
- Steel

◆ **Rail track: 6060 nodes**

- 3800 Brick73 elements
- Steel



■ ADAMS/Flex mnf:

◆ **Axle:**

- 4 IFC nodes
- 5 further N modes

◆ **Rail Track:**

- 16 IFC nodes
- 5 further N modes



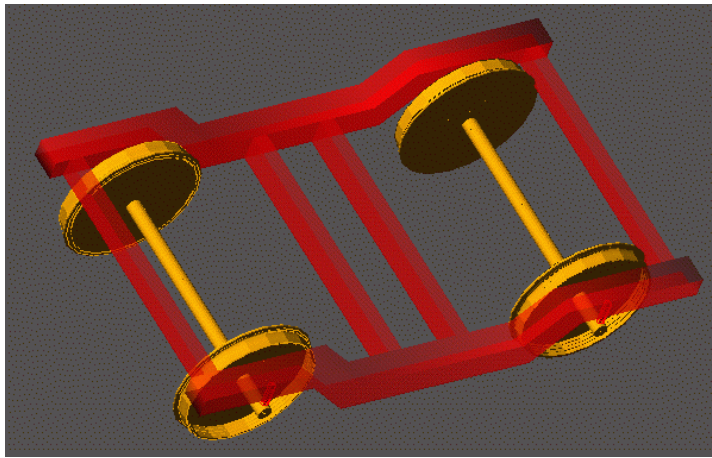
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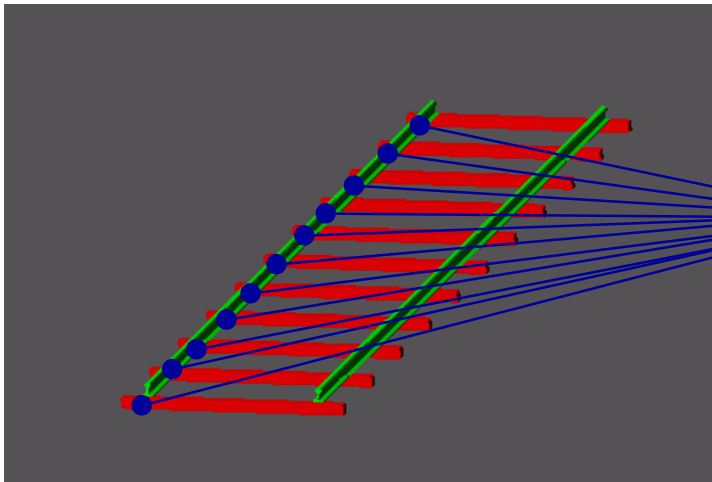
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■ Bogie Model:

- ◆ Axles are connected via spherical joints to bearing mountings and via translational spring - dampers to bogie frame (4 interface points for each axle).



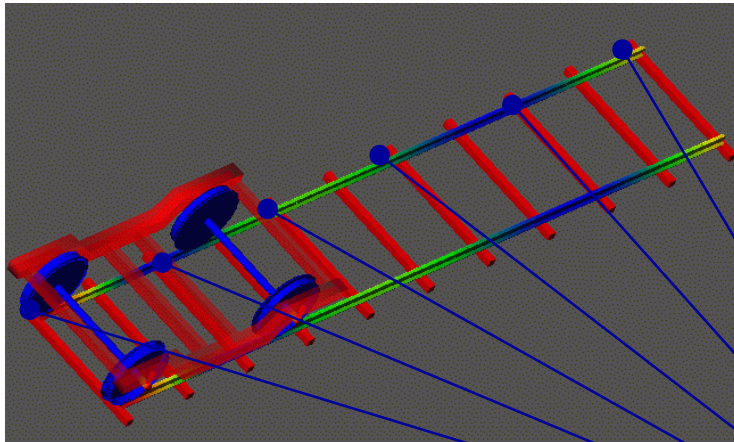
■ Track model

- Track is connected to ground using bushings to simulate the ballast stiffness



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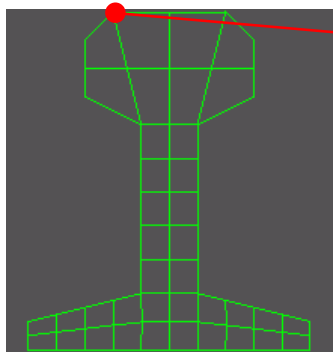


■ Assembly model

- ◆ The bogie and track models have been assembled using a special point to flexible curve constraint.

■ Flexible PTCV

The tool features the capability for the wheel to move along the flexible track path, including rolling motion and dynamic friction effect. The flexible track deformed shape, used to describe the flex ptcv curve has been modeled using a spline, passing through 6 points of the track.





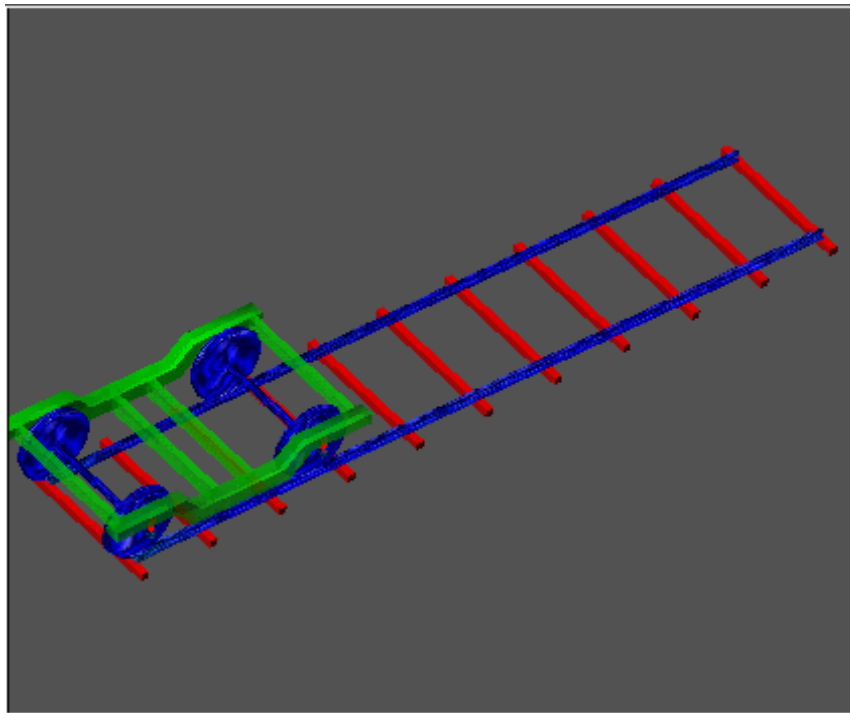
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APPLICATION EXAMPLE

Stress recovery analysis on Flexible Wheelset Bogie moving on a Flexible Rail

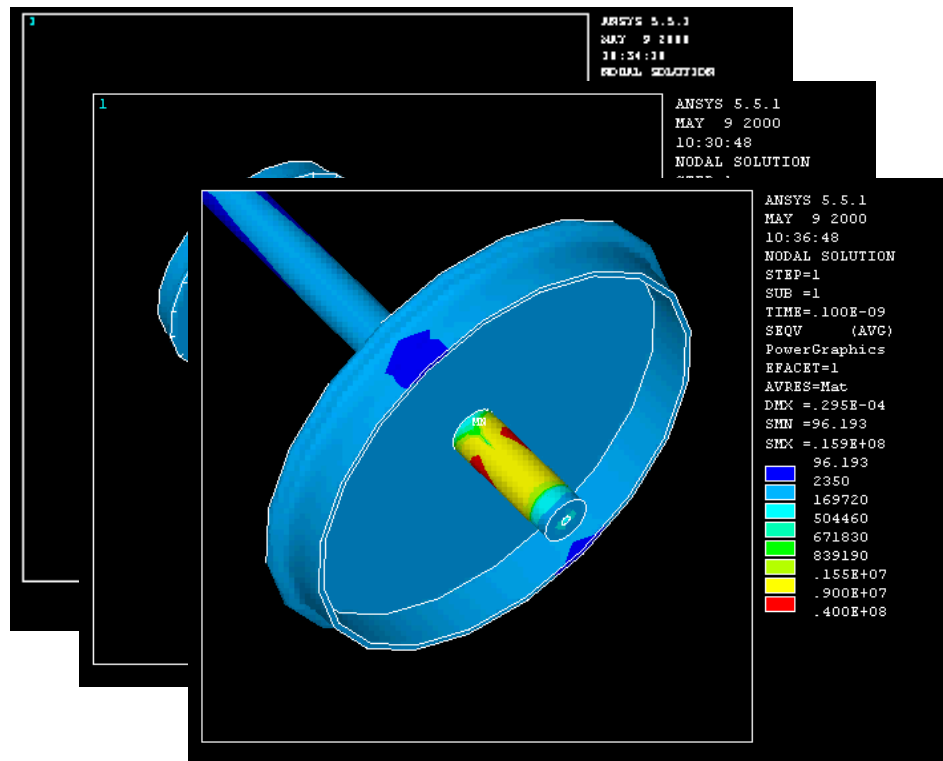


- ADAMS simulation
 - ◆ Dynamic simulation
 - ◆ Bogie running at 20 m/s
 - ◆ 400s CPU on SGI Octane 300MHz



APPLICATION EXAMPLE

Stress recovery analysis on Flexible Wheelset Bogie moving on a Flexible Rail



■ ANSYS Stress Recovery

- ◆ Stress recovery has been performed on a track portion and on the wheelset model.