

UNIVERSAL MECHANISM

FREIGHT WAGON MODELLING

UM MODELS OF FREIGHT BOGIES

There are two the most widely used types of freight railway bogies:

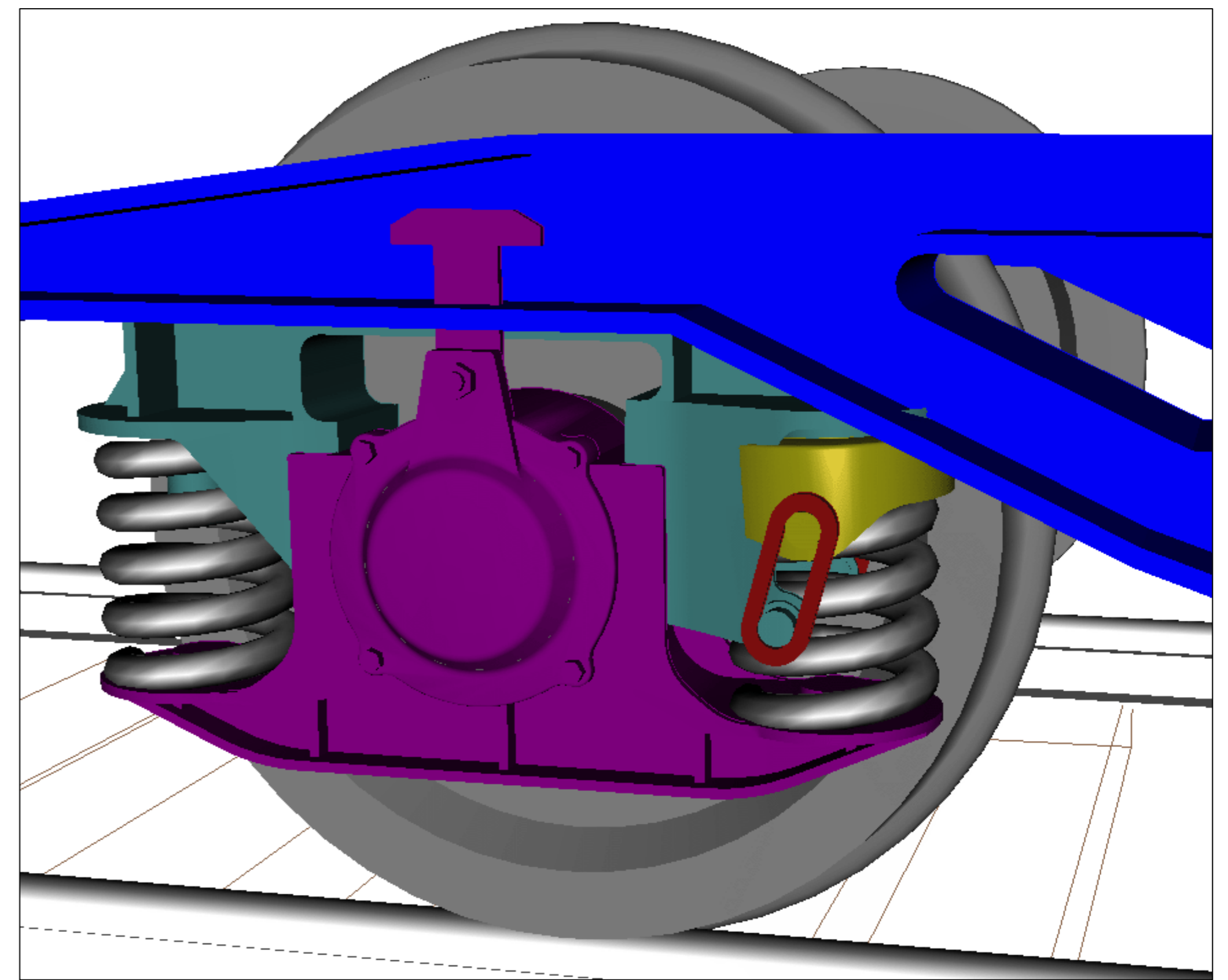
- Y25 bogies
- Three-piece bogies

The popularity of these bogies is caused by the cheapness of their production and maintenance.

The models of these bogies were created in Universal Mechanism. Models were described according to multibody approach, where mechanical systems are presented as a set of rigid bodies, joints and force elements.

These models were verified and now they are applied for solving various practical problems:

- Investigation of freight wagon dynamics
- Safety problems
- Wear of wheel and rail profile



Y25 FREIGHT BOGIE MODEL

Y25 bogie and its analogues are widely used in Europe. This bogie has only primary suspension which connects side frame and wheelsets.

The UM model of the bogie includes 15 rigid bodies:

- Frame
- 4 axle-boxes
- 4 spring holders
- 4 pushers
- 4 wheelsets



THREE-PIECE BOGIE AND FREIGHT WAGON MODELS

Freight wagons with three-piece bogies are widely used around the world in practice of heavy haul railway operations.

The following models of freight wagons with three-piece bogies were simulated with the help of UM:

- Open wagon
- Hopper
- Tank truck

UM model of the three-piece bogie allows all clearances between the bolster, wedges, side frames and wheelsets. Such model is more accurate one for simulation of the dynamic behavior of wedges, axle-boxes and pivots.

