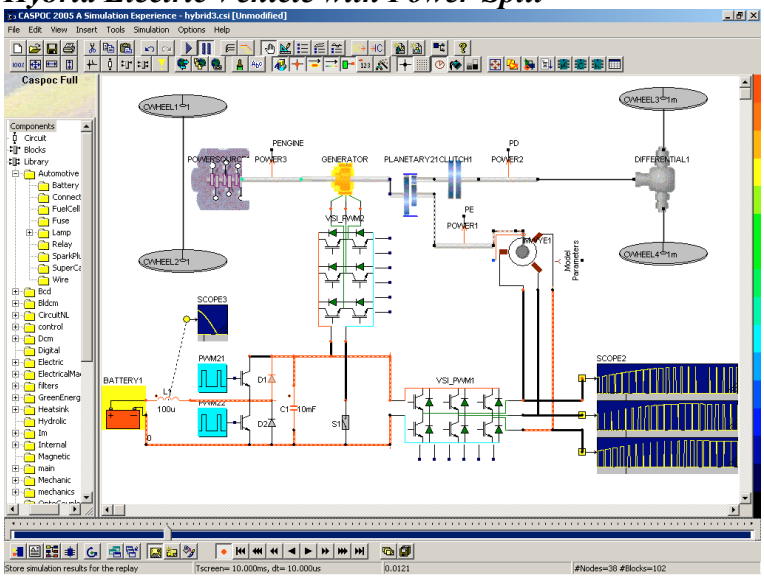
Caspoc

Fast and Easy Power Electronics and Electrical Drives Simulation

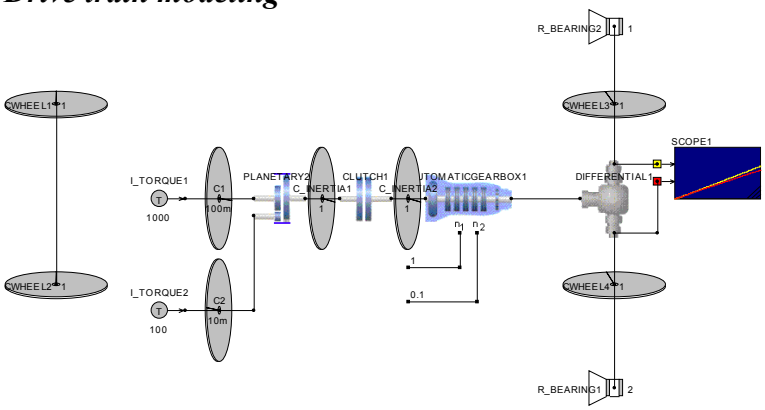
Hybrid Electric Vehicles

Complete drive train simulation for Hybrid Electric Vehicles. Include the combustion engine, wheels, clutch, differential, electric motor, generator, inverter, battery, bi-directional-converter in one model. Simulate entire drive cycles and observe the power management in the drive train.

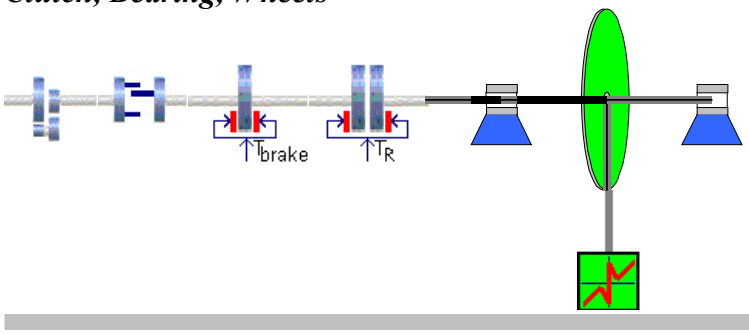
Hybrid Electric Vehicle with Power-Split



Drive train modeling



Drive train components like; GearBox, Back-Lash,Brake, Clutch, Bearing, Wheels

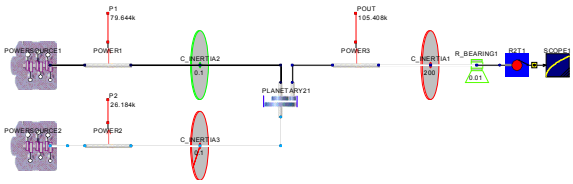


Features:

- Mechanical drive train
- Inverters with PWM and Field-Oriented Control
- Detailed non-linear machine models
- Alternator model including 6 pulse rectifier and controller
- Battery model with SOC, and charge/discharge impedance.
- High-voltage spark plug model
- Bi-directional DC supplies with current limiting and efficiency modeled
- Drive cycles for Power Management

Mechanical drive-train, electric machine and power electronics combined

The entire drive train is model in Caspoc. Not only the mechanical parts, but also the electric machine, inverter and control are modeled in detail. The mechanical components are modeled in detail like the clutch, brake, planetary gears and differential. Non-linear properties like spring characteristics and friction models can be imported from FEM.



Summarizing,
Drive train modeling with non-linear mechanical components quick and easy.