

TRA2020 – Rethinking transport

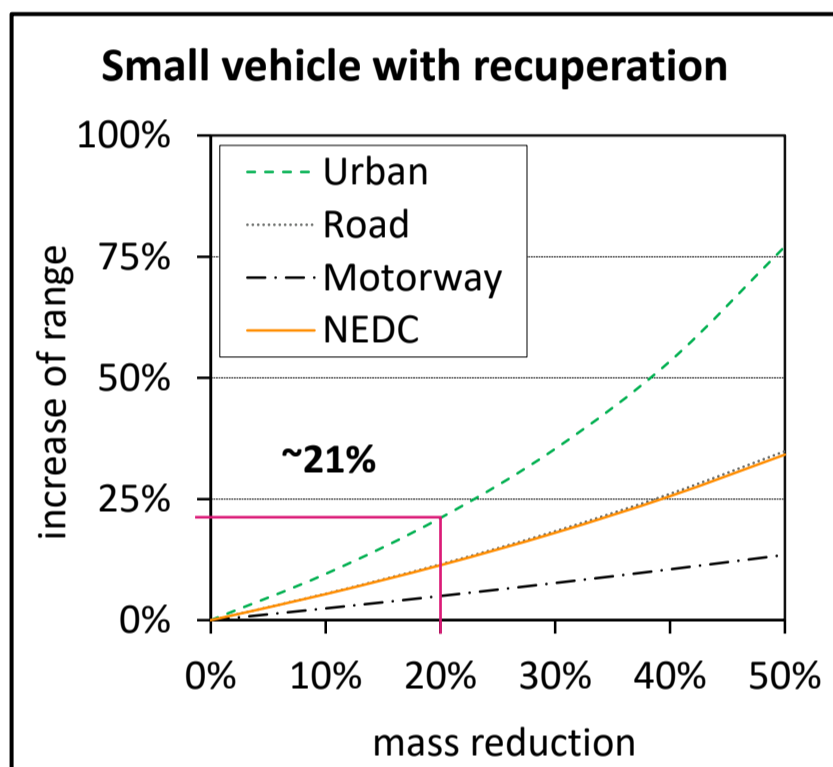
Towards clean and inclusive mobility • Helsinki 27–30 April 2020

An innovative and safe active light weight design chassis suspension system - An enhanced development methodology

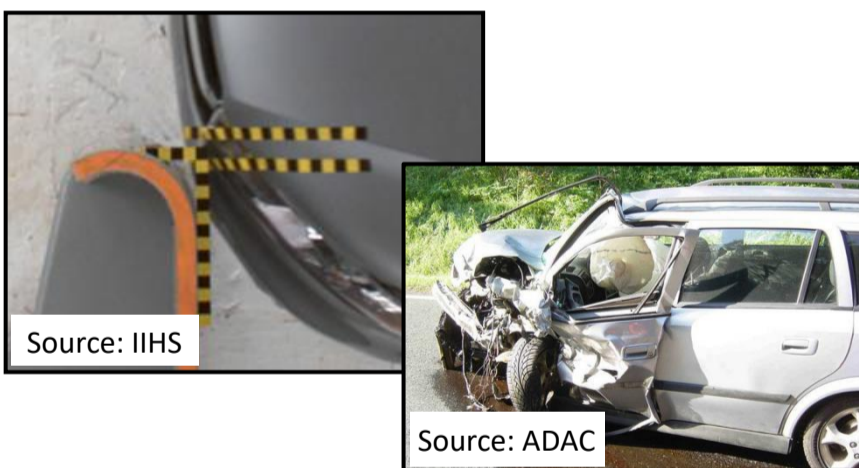
Paper ID#335: Oliver Deisser, Institute for Vehicle Concepts, Germany
 Thomas Gruenheid, Institute for Vehicle Concepts, Germany
 Michael Schaeffer, Institute for Vehicle Concepts, Germany

Need for a new chassis

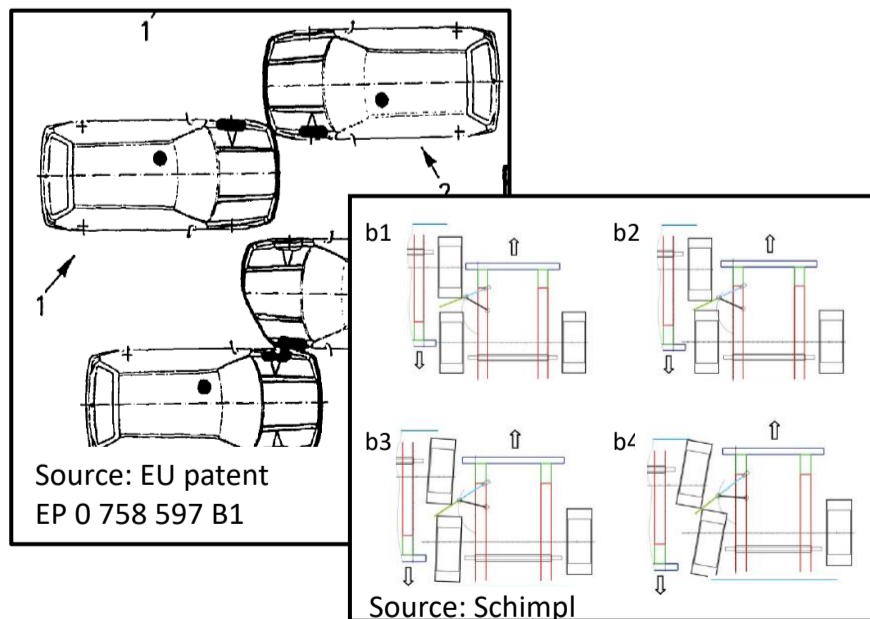
Lightweight Design is still important for electrified vehicles



Current regulations and a lack of crash compability in reality



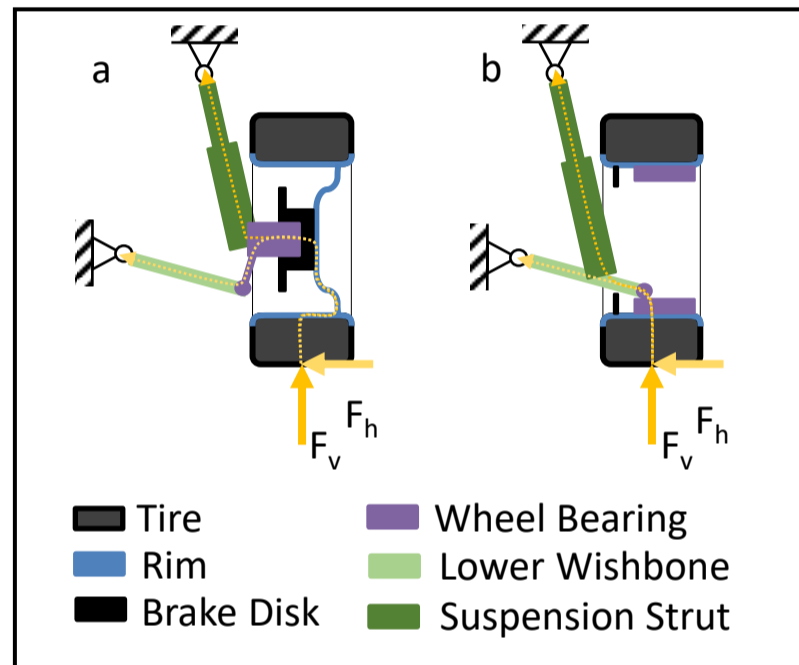
Deflection: a possible solution



3 steps to a safe active chassis system

The orbital wheel concept

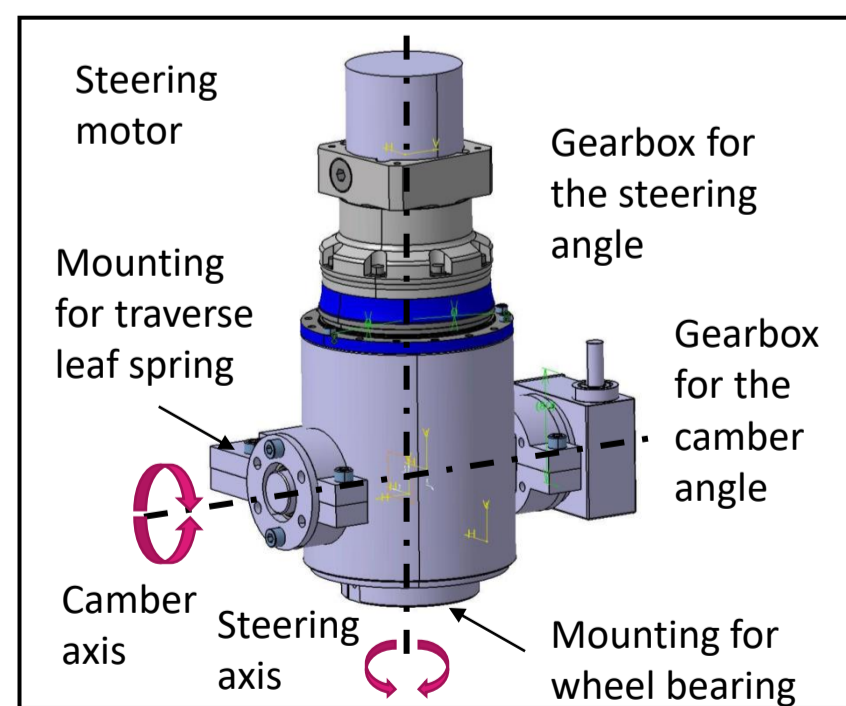
- Direct force distribution from road to body
- Simple parts due to direct force routing
- Reduced number of parts and mass



(a) conventional MacPherson suspension;
 (b) orbital wheel with MacPherson

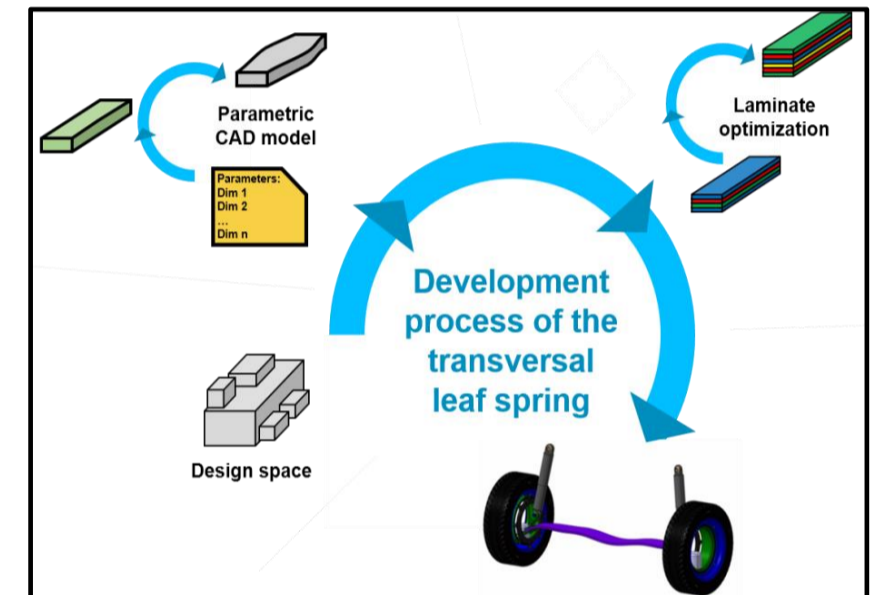
Two axis independent steering system

- Reduced energy consumption
- Better driving performance
- High active safety potential
- Better grip & Enhanced cornering stability

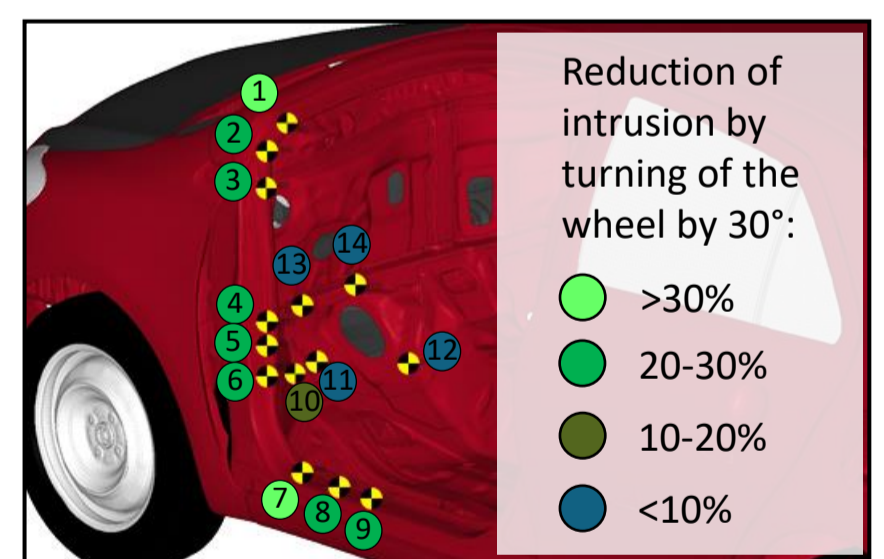


GFRP transverse leaf spring

- New development process for reinforced leaf springs
- Closed loop in the automated development of CAD model and fiber layup
- High optimization potential at an early design stage



The wheel as deflection shield is enough



More information

Mail to: oliver.deisser@dlr.de