



## E-Scooter accidents - personal protective equipment to reduce the injury severity.

### Background

A trend towards new means of transport can also be observed in Austria. E-scooters are becoming more and more popular, which can be seen not least in the sales figures and the increasing number of e-scooters for hire. The increase in the number of e-scooters in road traffic is also leading to increasing conflicts with other road users (pedestrians, cyclists and motor vehicles), which often end in accidents. The aim of the research project Smart Urban Road Safety- Traffic Safety of new Vulnerable Road Users (SURF) is - should an accident occur - to assess the injury risk in e-scooter accidents and to derive recommendations for accident and injury prevention. Therefore, FE models of personal protective equipment (PPE) for e-scooter uses should be developed. With the help of these FE models, the influence of personal protective equipment on the injury severity should be evaluated with the help of Human Body Model FE-Simulations.



**Your goal** in this thesis is to develop FE models of PPEs. Therefore, in a first step the dimensions and material characteristics should be determined in laboratory tests. After creating 3D-CAD models of different PPEs FE models should be created. This FE models should be validated with the material data collected in the laboratory tests.

### Tasks

- **Get familiar** with laboratory tests, material characteristics and FE modelling.
- **Selection** of PPEs relevant for e-scooter users.
- **Perform** laboratory tests to determine the dimensions and material characteristics of different PPEs.
- **Development** of FE models for the different PPEs.

### Topic as thesis for

Master Thesis for Mechanical Engineering or Production Science and Management

### Organizational

- Start: anytime
- Language: German or English
- Scholarship **only for Master Thesis**: min. € 2.500, - for successful completion of the thesis
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