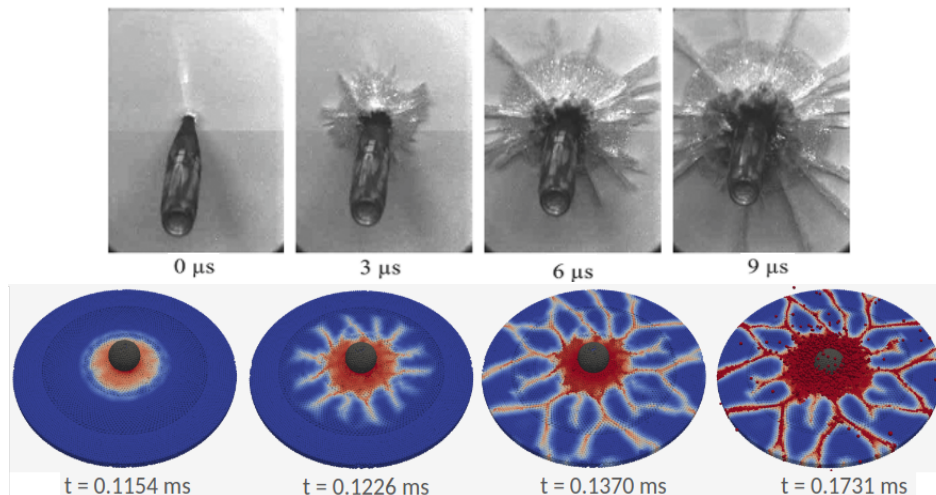


Master's Thesis

Computational analysis of ballistic impact on glass

Supervisor: Sahir Butt



Background: Glass has been used in applications such as security glazing in vehicles, light weight armor and blast-proof windows in buildings due to their high rigidity and strength per unit weight. In such scenarios, the prediction of fracture patterns and the size of fragments is a crucial task in order to determine the amount of energy that can be absorbed during a high-speed impact. The energy that can be absorbed at different loading rates ultimately defines the working range of the glass specimen.

Task: Within this thesis the following tasks are to be completed:

- Understanding of the peridynamic continua
- Study of existing damage and material models for different glasses
- Implementing a compute class in C++ in the existing peridynamics code for the extraction of fragments
- Verification and validation of the fragment size distribution obtained from the simulations

Contact/Kontakt:

Sahir Butt

Raum: IC 6/173

Lehrstuhl für Statik und Dynamik

Ruhr-Universität Bochum

Tel: 0234-32-29062

Email: sahir.butt@rub.de