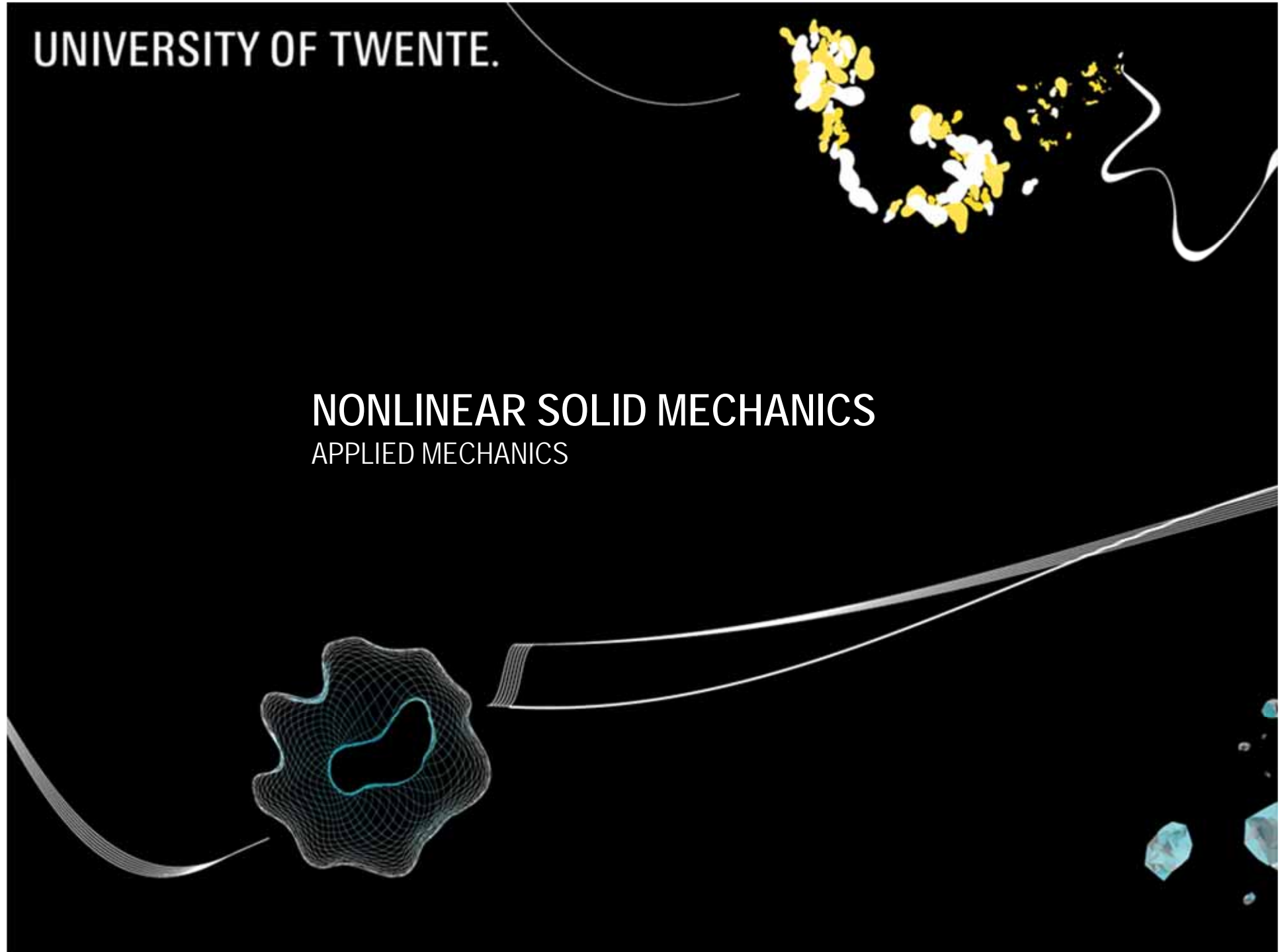


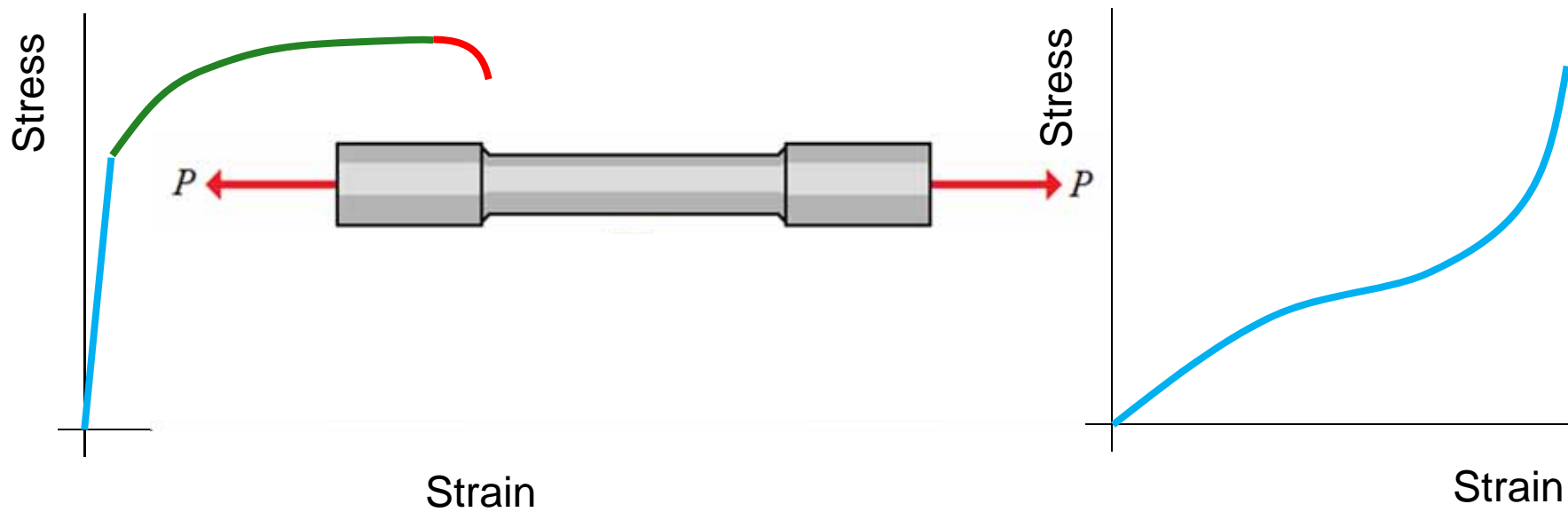
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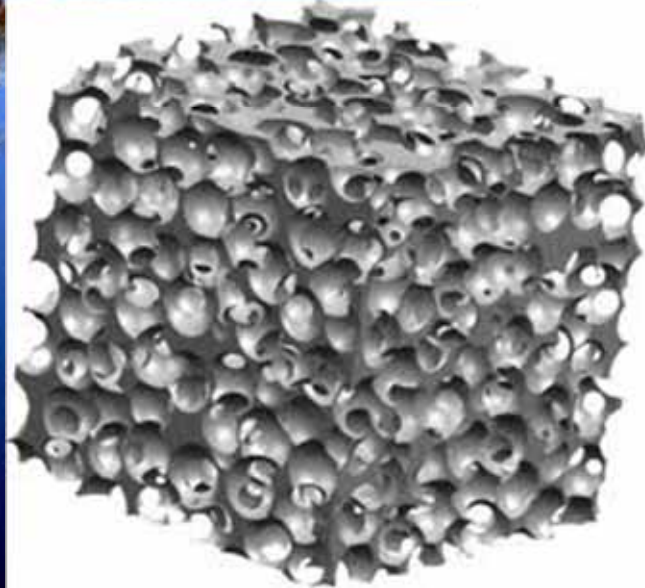
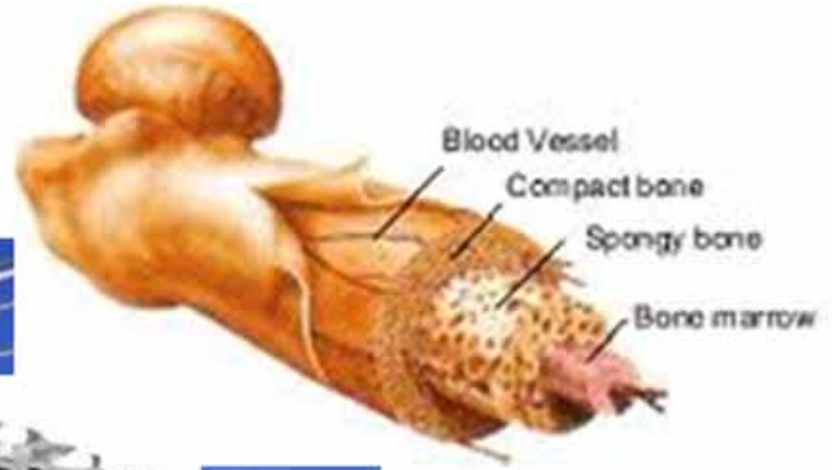
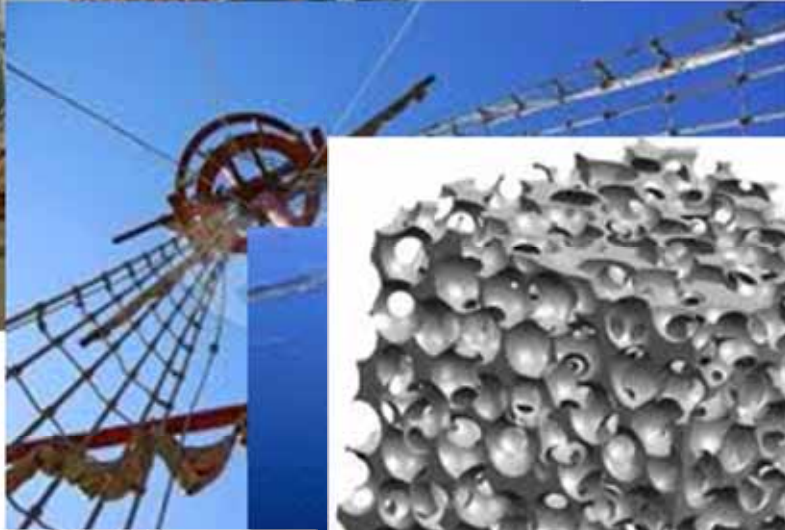
NONLINEAR SOLID MECHANICS

APPLIED MECHANICS



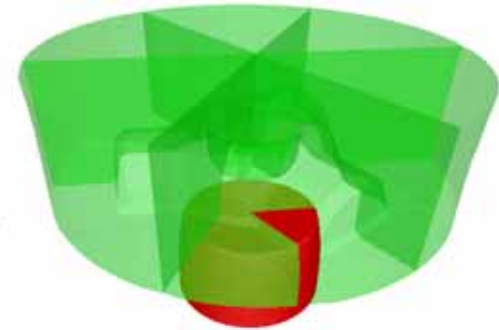
WHY NONLINEAR SOLID MECHANICS?





NONLINEAR SOLID MECHANICS

- Nonlinear material behavior
 - Large deformations
 - Plasticity
 - Fracture
- Large displacements/rotations
- Contact and friction
- Coupled problems
 - Thermo-mechanical analysis



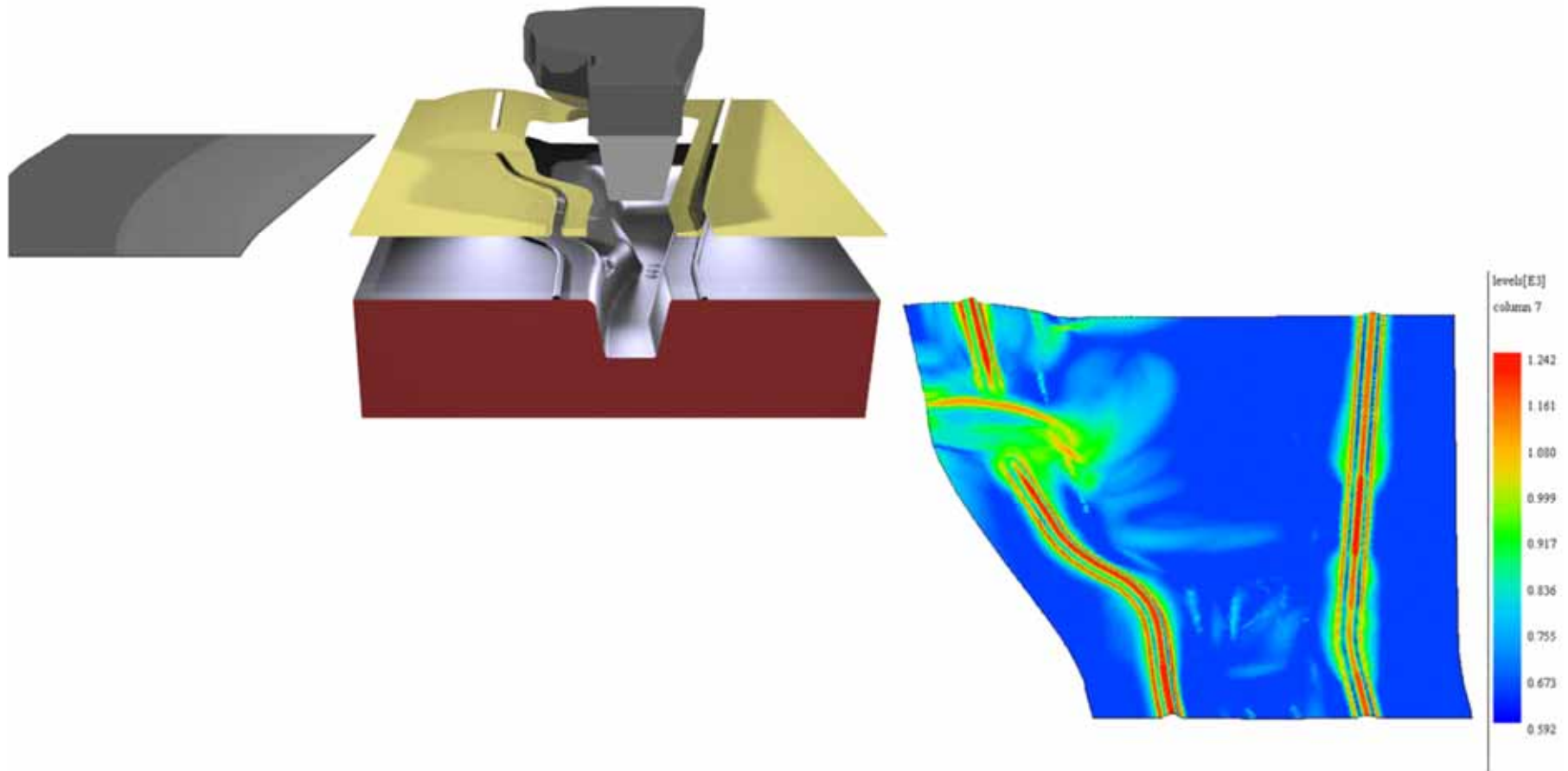
RESEARCH AREAS

- Sheet metal forming
- Forging
- Biomechanics
- Crashworthiness
- Material modeling/experiments



STAMPING OF SHEET METAL: AUTOMOTIVE INDUSTRY

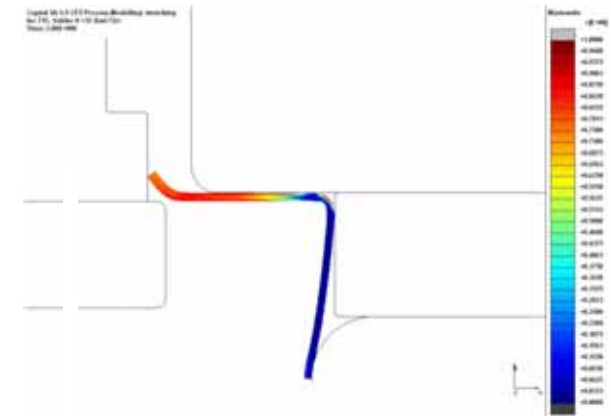
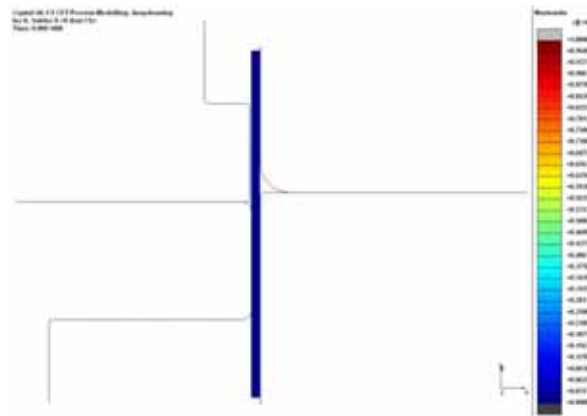
(10+ graduation projects at Tata Steel)





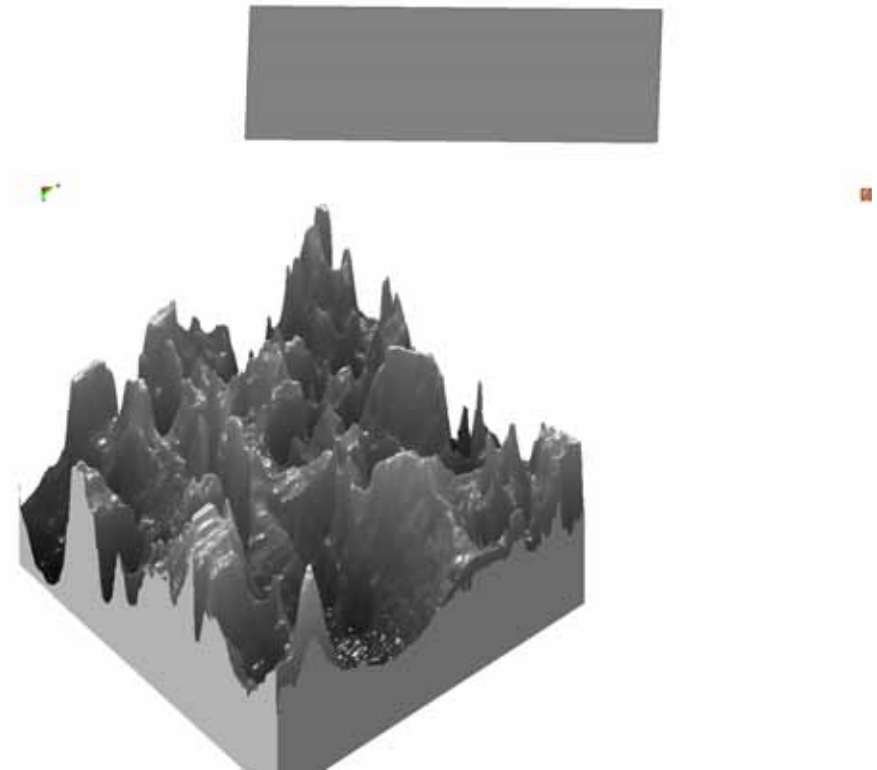
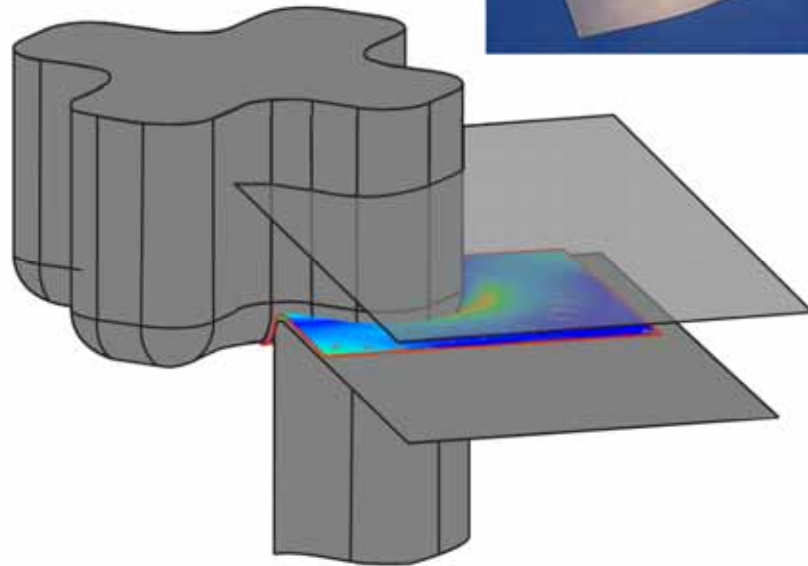
STAMPING OF SHEET METAL: CONSUMER LIFESTYLE

(10+ graduation projects at Philips)



ADVANCED FRICTION MODELING

a.o. Jos Havinga, Mart Bruinja, Ruben Bosman





CRASHWORTHINESS

Jan Harmen Wiebenga, Henrico Puttenstein, Jaap Horenberg, Marc van Gerrevink, Tom Eller, Rutger Damink

Jiangling Landwind X6 (2005)



- Starting at € 18.000 (NL)
- ± 1700 kg

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Volkswagen Touareg (2004)



- Starting at € 70.000 (NL)
- ± 2000 kg

Nonlinear Solid Mechanics 27/02/2013



CRASHWORTHINESS

Jiangling Landwind (2005)



Volkswagen Touareg (2004)



Frontal impact (side view)



CRASHWORTHINESS

Jiangling Landwind (2005)



Volkswagen Touareg (2004)



Frontal impact (inside view)



CRASHWORTHINESS

Jiangling Landwind (2005)



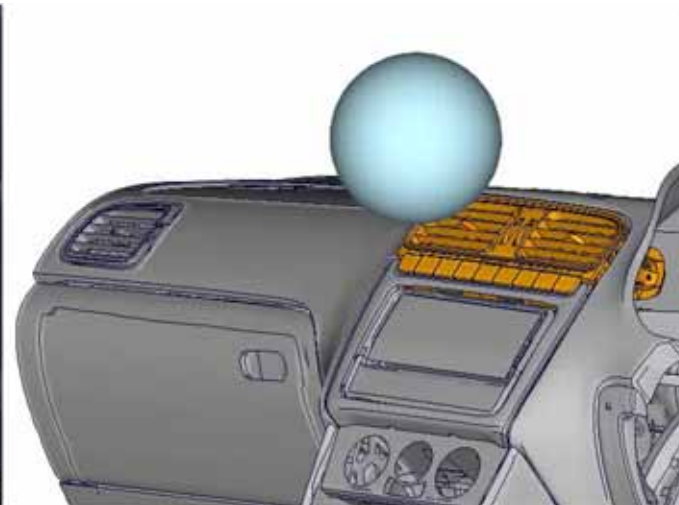
Volkswagen Touareg (2004)



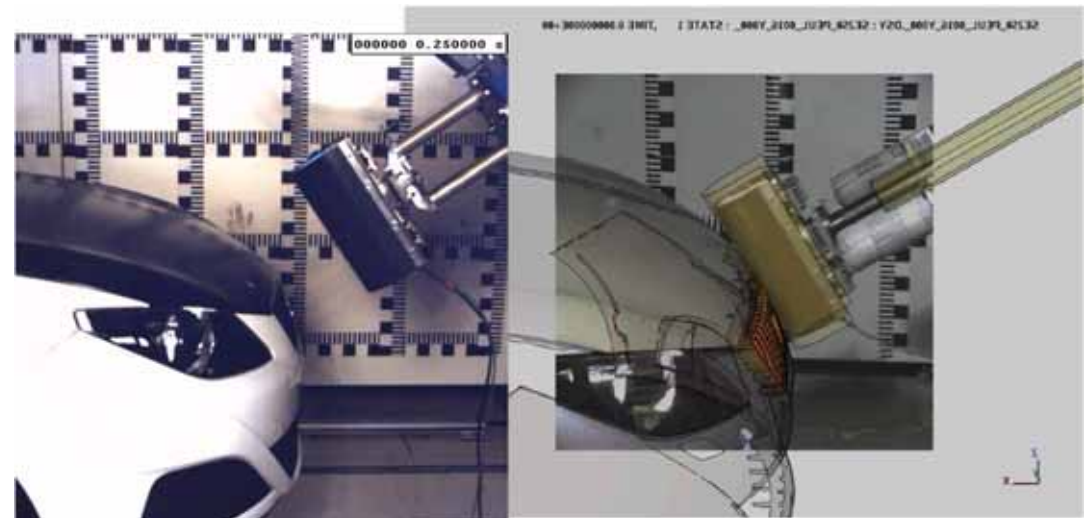


CRASHWORTHINESS

Jan Harmen Wiebenga, Henrico Puttenstein, Jaap Horenberg, Marc van Gerrevink, Tom Eller, Rutger Damink

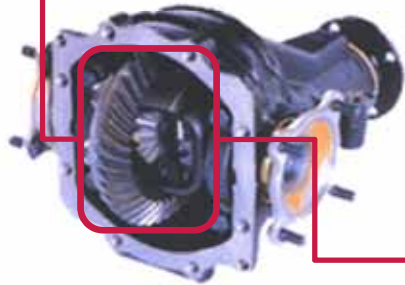


TE.



FORGING: OPTIMIZATION

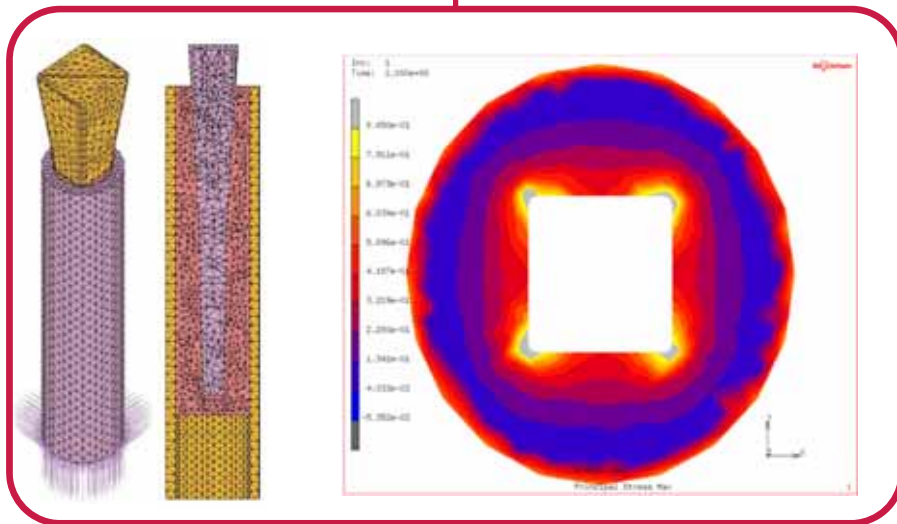
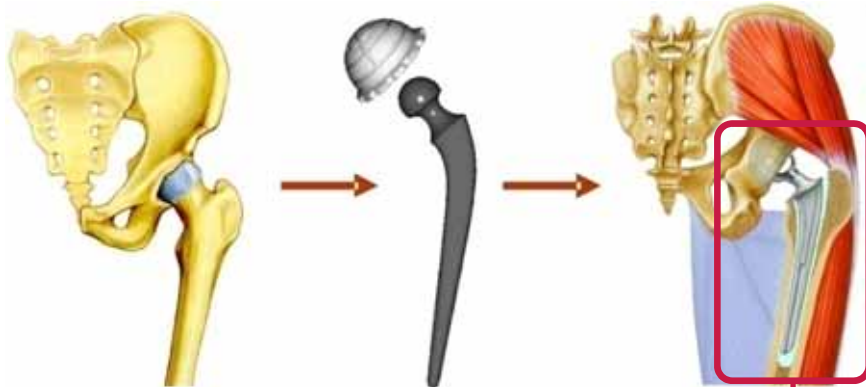
a.o. Else Veldman, Remco van Ravenswaaij





BIOMECHANICS: OPTIMIZATION

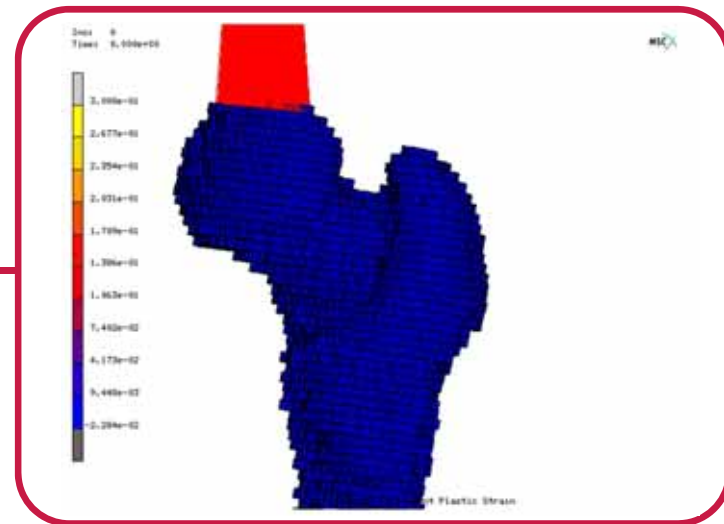
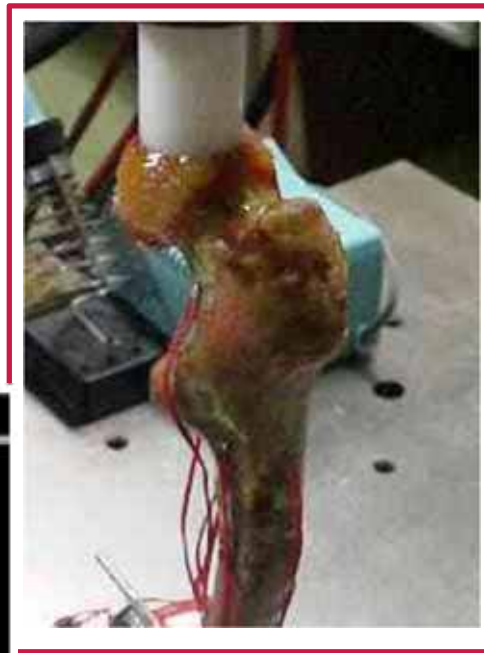
a.o. Wouter Lucassen





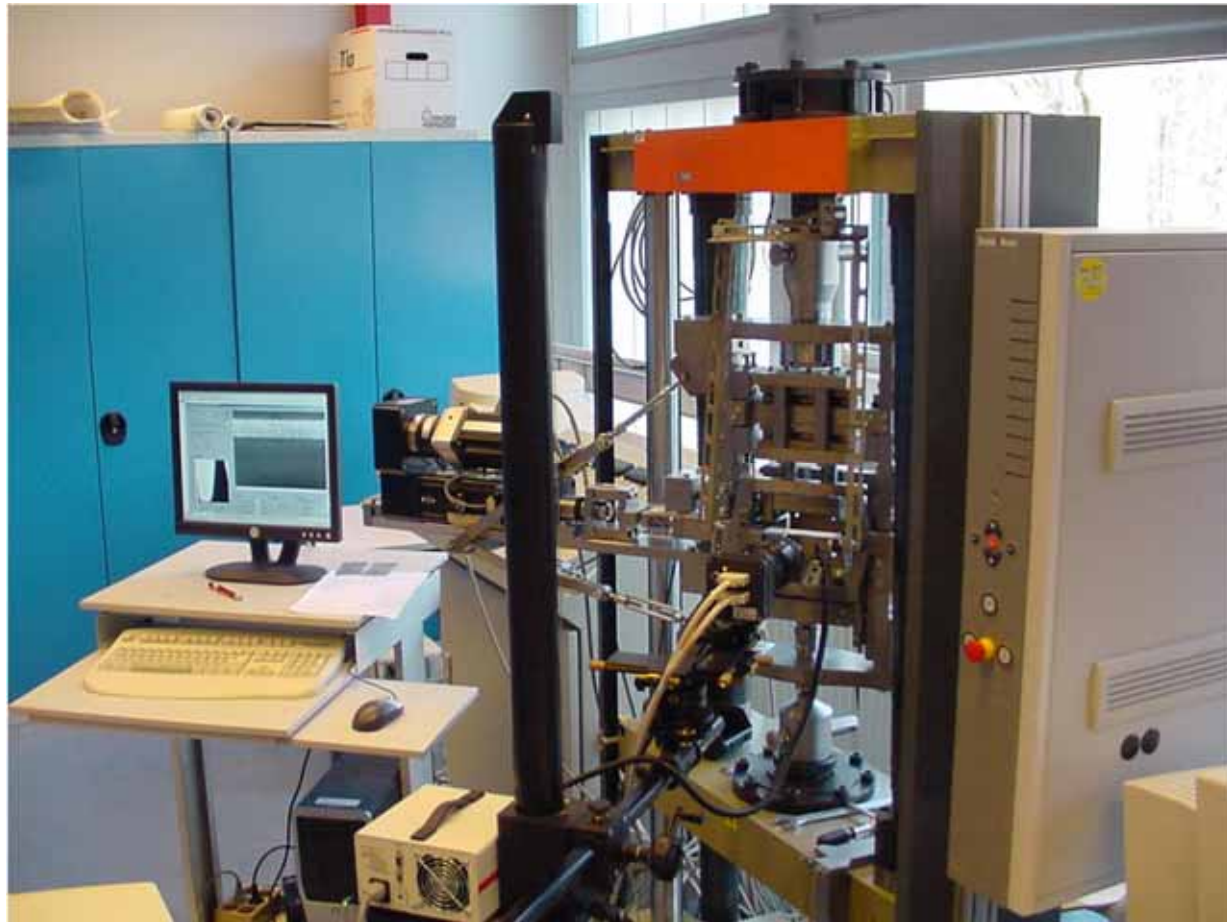
BIOMECHANICS: BONE FRACTURE MODELING

Jantien van Aken, Roeland Vis, Dany Audish



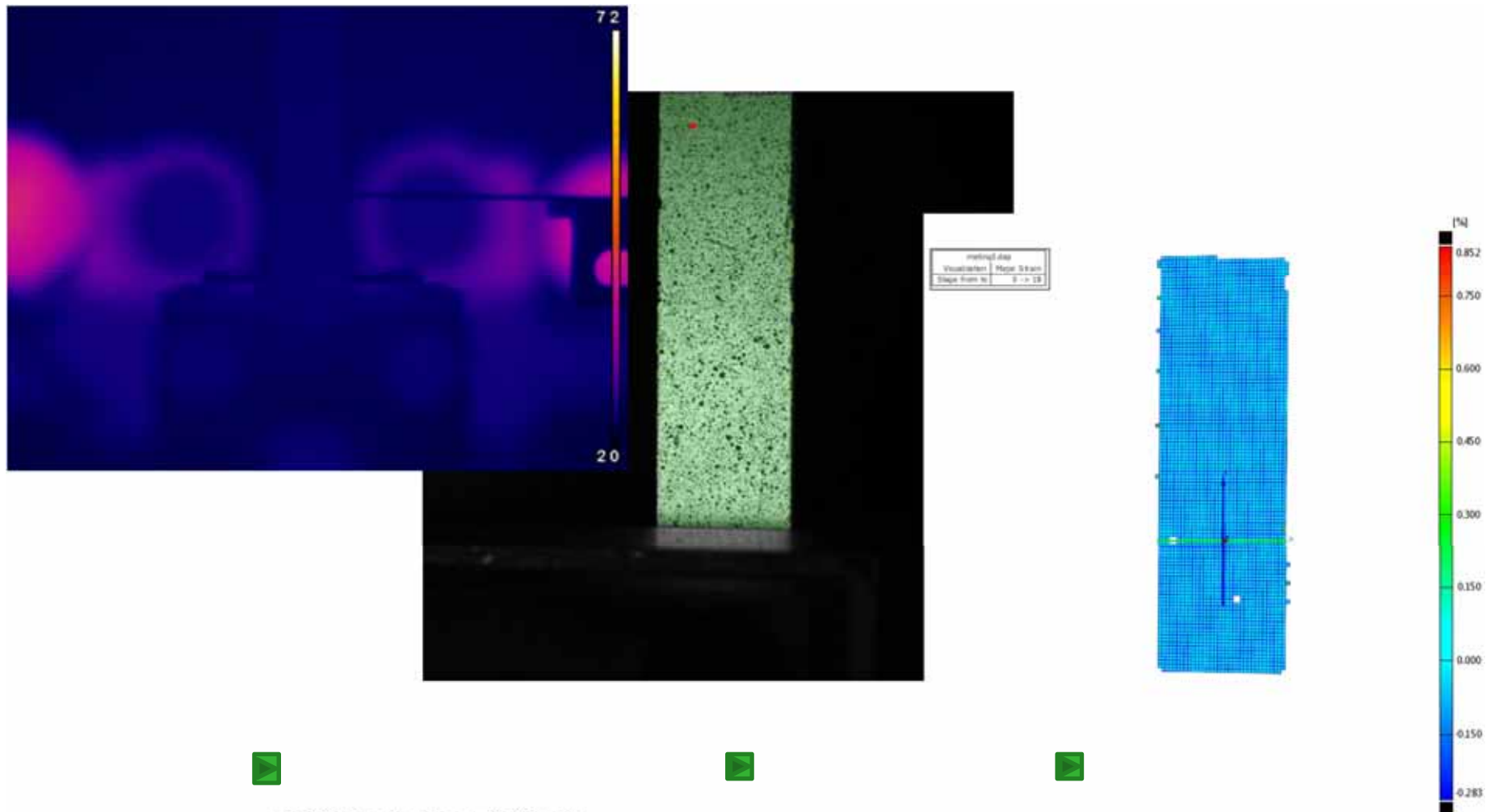
MATERIAL RESEARCH

a.o. Rob Miedema, Floris Ruiter, Jan Galema



MATERIAL RESEARCH

a.o. Rob Miedema, Floris Ruiter, Jan Galema



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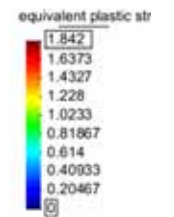
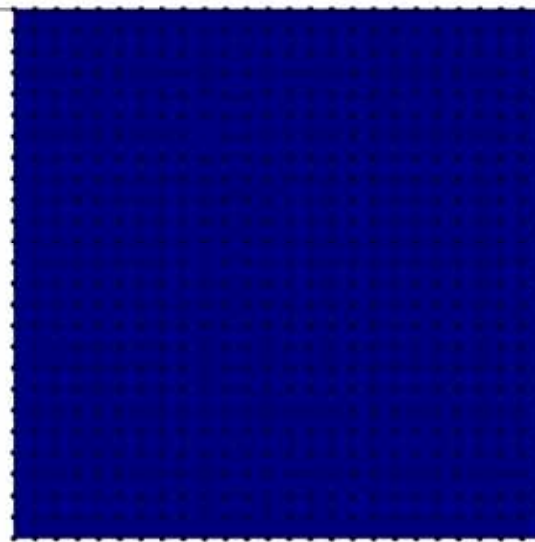


Nonlinear Solid Mechanics

27/02/2013

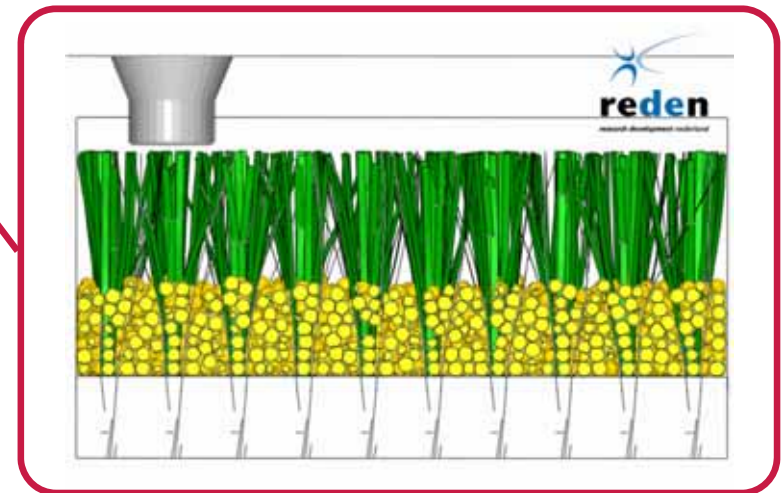
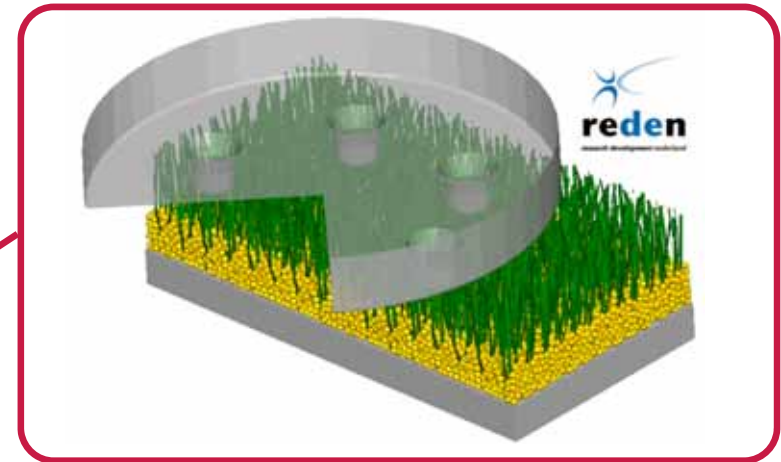
MESHLESS METHODS

Matthijs Dekker, Jeroen Brouwers



GRIP ON ARTIFICIAL GRASS

Martijn Kromwijk



GRADUATION PROJECTS

- projects driven by PhD research (internal/external)
- projects driven by industry (external/internal)
- combined projects with
 - Biomechanical Engineering
 - Production Technology
 - Structural Dynamics and Acoustics
 - Surface Technology and Tribology