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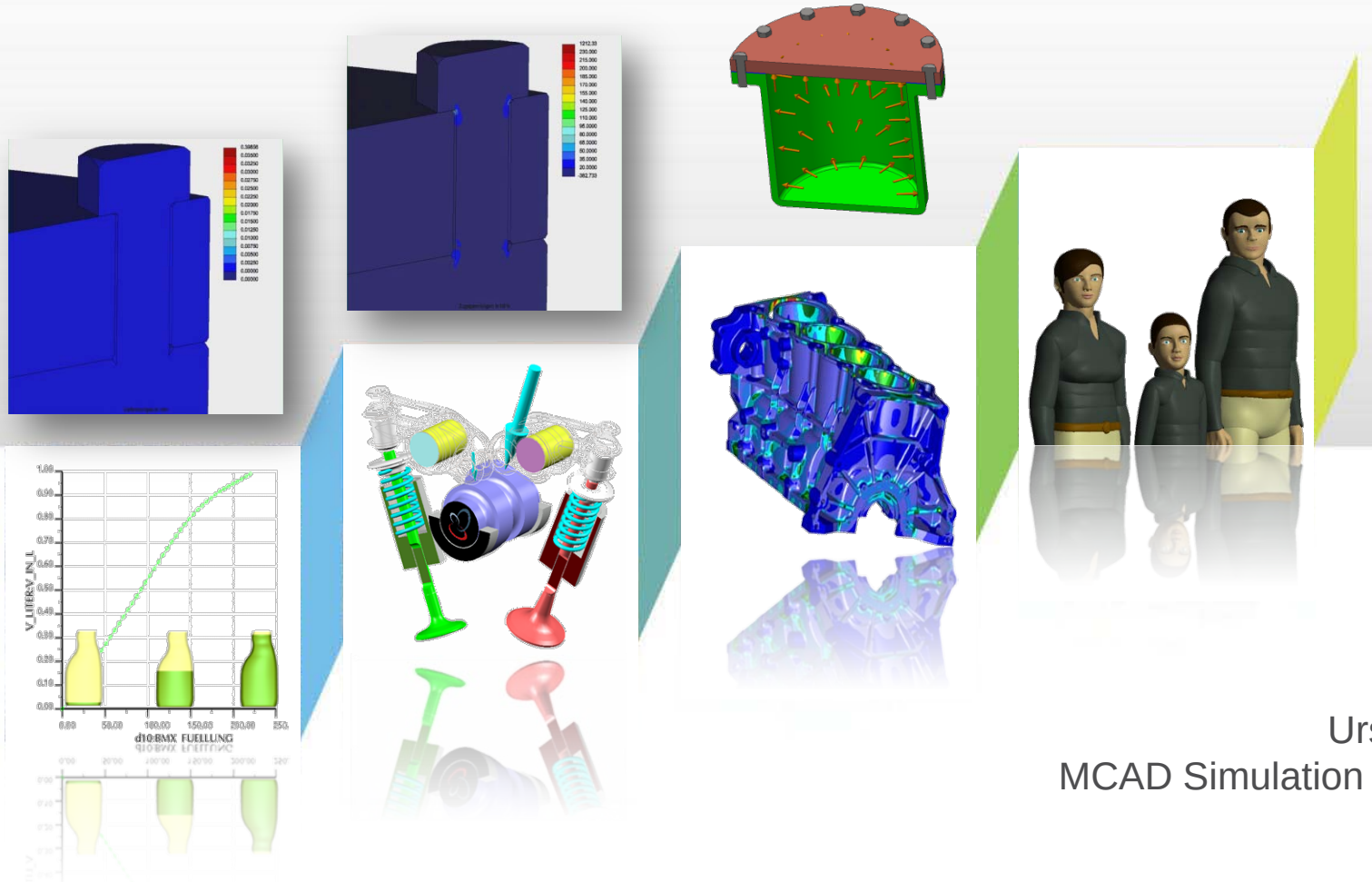
SAXSIM.DE ANWENDERTREFFEN SIMULATION

News Creo Simulae 1.0 & 2.0

- Druckbehälter: Schraubenvorspannung / Betriebslast



Urs Simmler
MCAD Simulation Specialist

Presentation

Urs Simmler

MCAD-Simulation-Specialist

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phone: +41 44 824 34 36

- Focused on PTC-simulation products
- Presales, Training, Consulting, …
- 23+ years simulation-experience (17 years with PTC)

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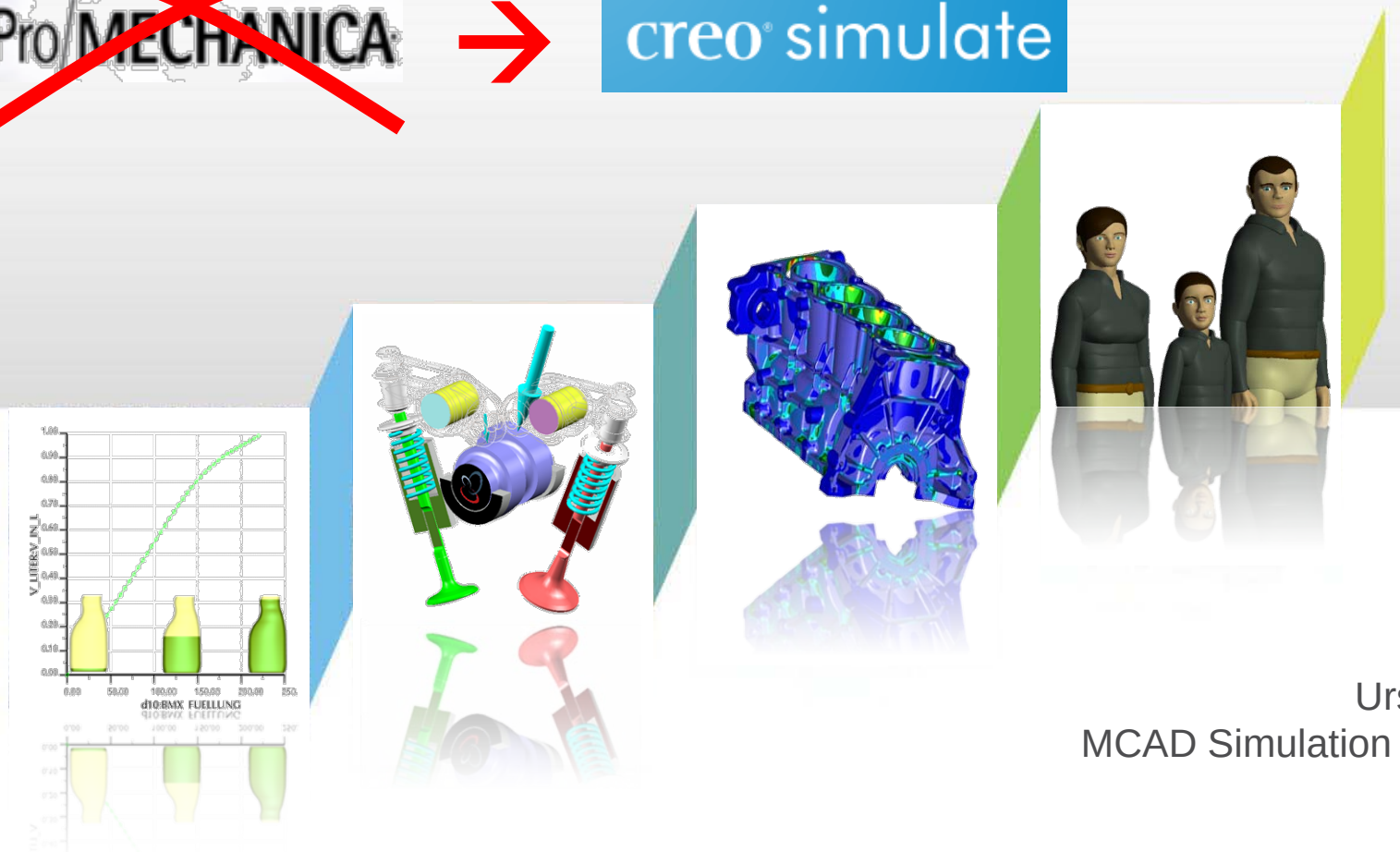
News Creo Simulate 1.0

~~Pro/MECHANICA~~ → creo simulate



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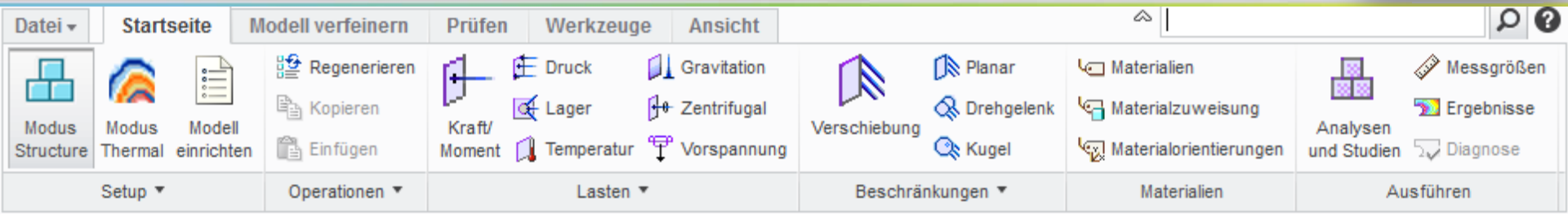
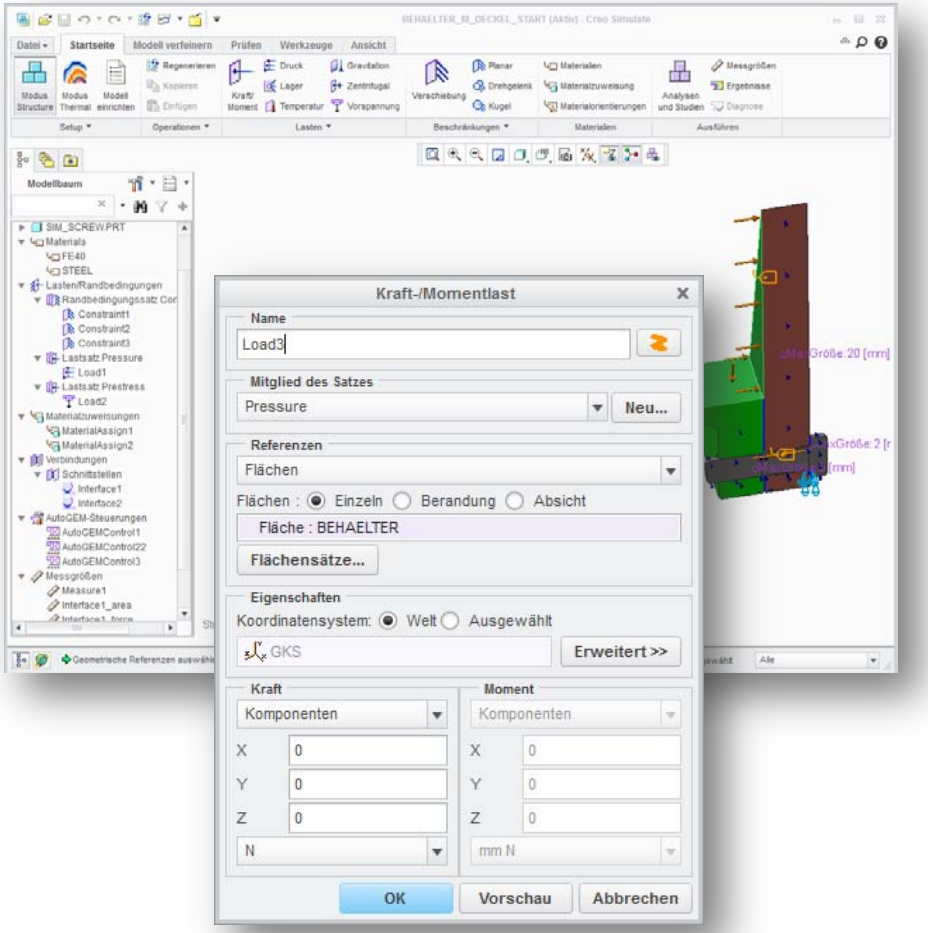
Creo Simulate 1.0: User Experience



- > Creo Simulate Standalone
- > Ribbon UI
- > Unit Support on all dialogs / Results
- > Moments/Rotations active when valid
- > Distributed Batch Support
- > Process Guide Template editor
- > 3D icons for loads, constraints
- > Mesh display in exploded view



Creo Simulate 1.0: Engineering Functionality

> General Large Displacement Analysis:
  - Contacts
  - Plasticity
  - Hyper-elasticity

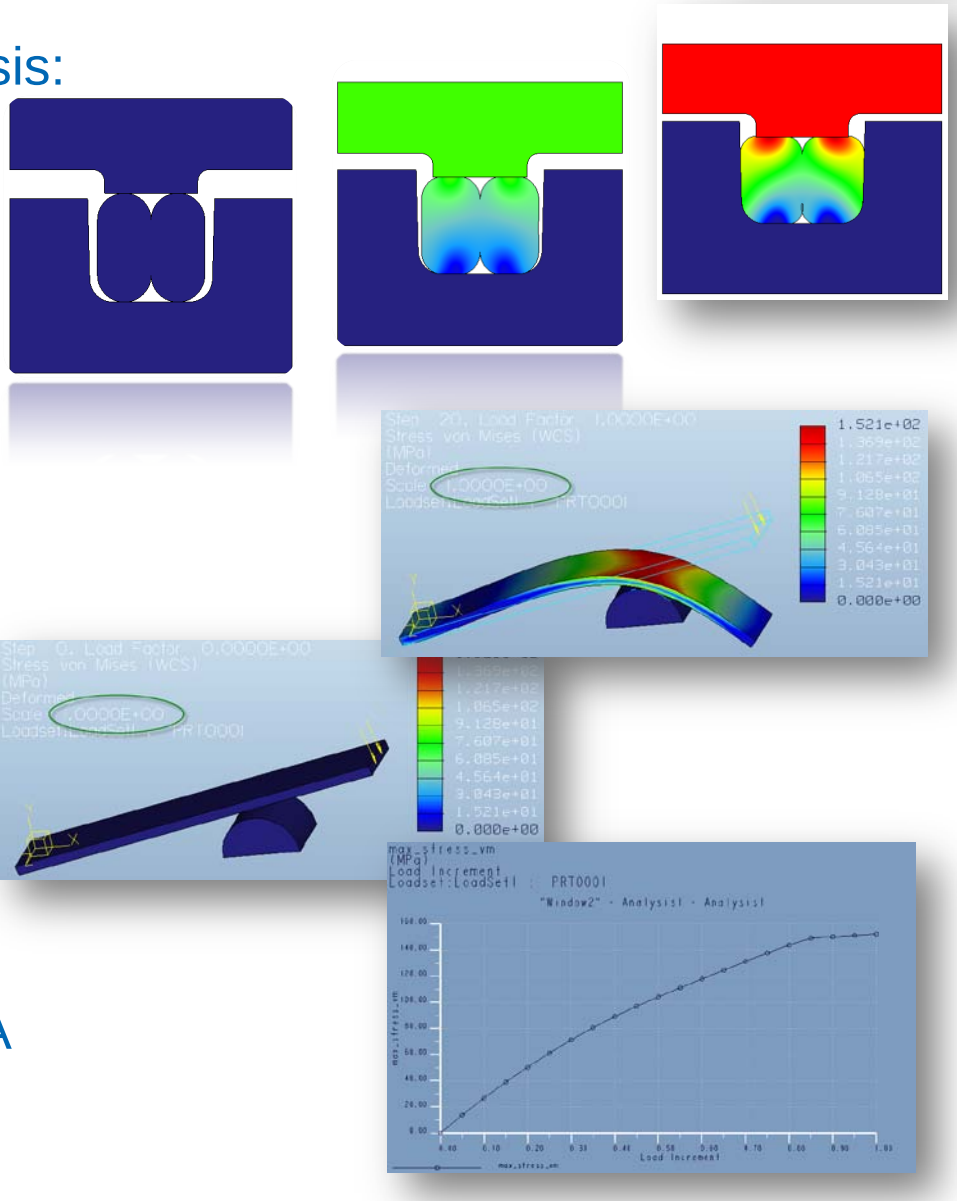
> Nonlinear Thermal Analysis:
  - Temperature Dependent Conductivity
  - Generalized Convection Conditions
  - Radiation Conditions

> Modeling of nonlinear springs

> Ordering of nonlinear loads

> 2D axi-symmetric LDA

> Modeling of UCS constraints in LDA



Creo Simulate 1.0: Engineering Functionality

> Moving Heat Loads:
  - Heat loads as combined functions of time and space
  - Heat loads on composite curves
  - Heat Loads as functions of arc length

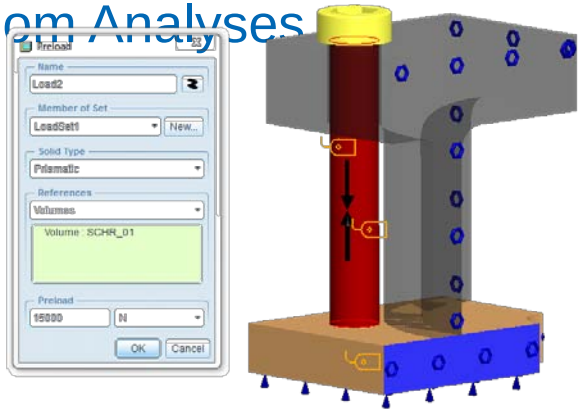
> Generalized modeling of Total Volume Heat Load

> Base Excitation Enhancements:
  - Different histories in different directions
  - Linear and rotational motion of the supports
  - Support G^2/Hz units of PSDs

> Calculation of von Mises stress results in Random Analyses

> Preload on bolts modeled as solids

> Modeling of variable thickness shells



Creo Simulate 1.0: Results

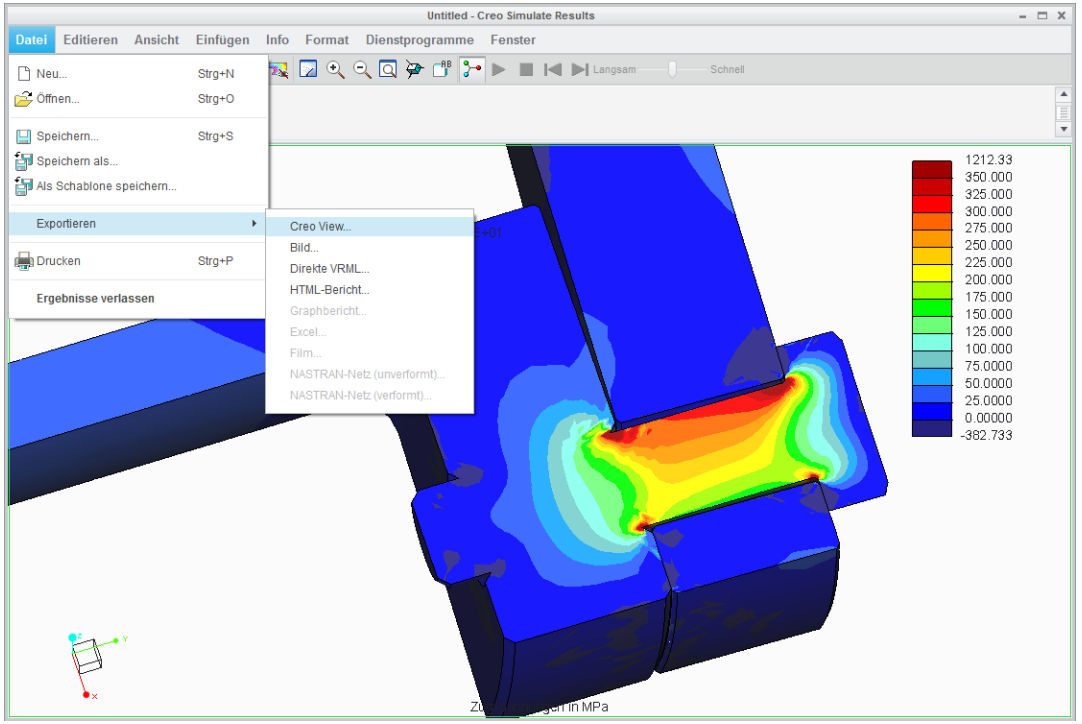
> Animation of Dynamic Frequency results

> Default Result templates

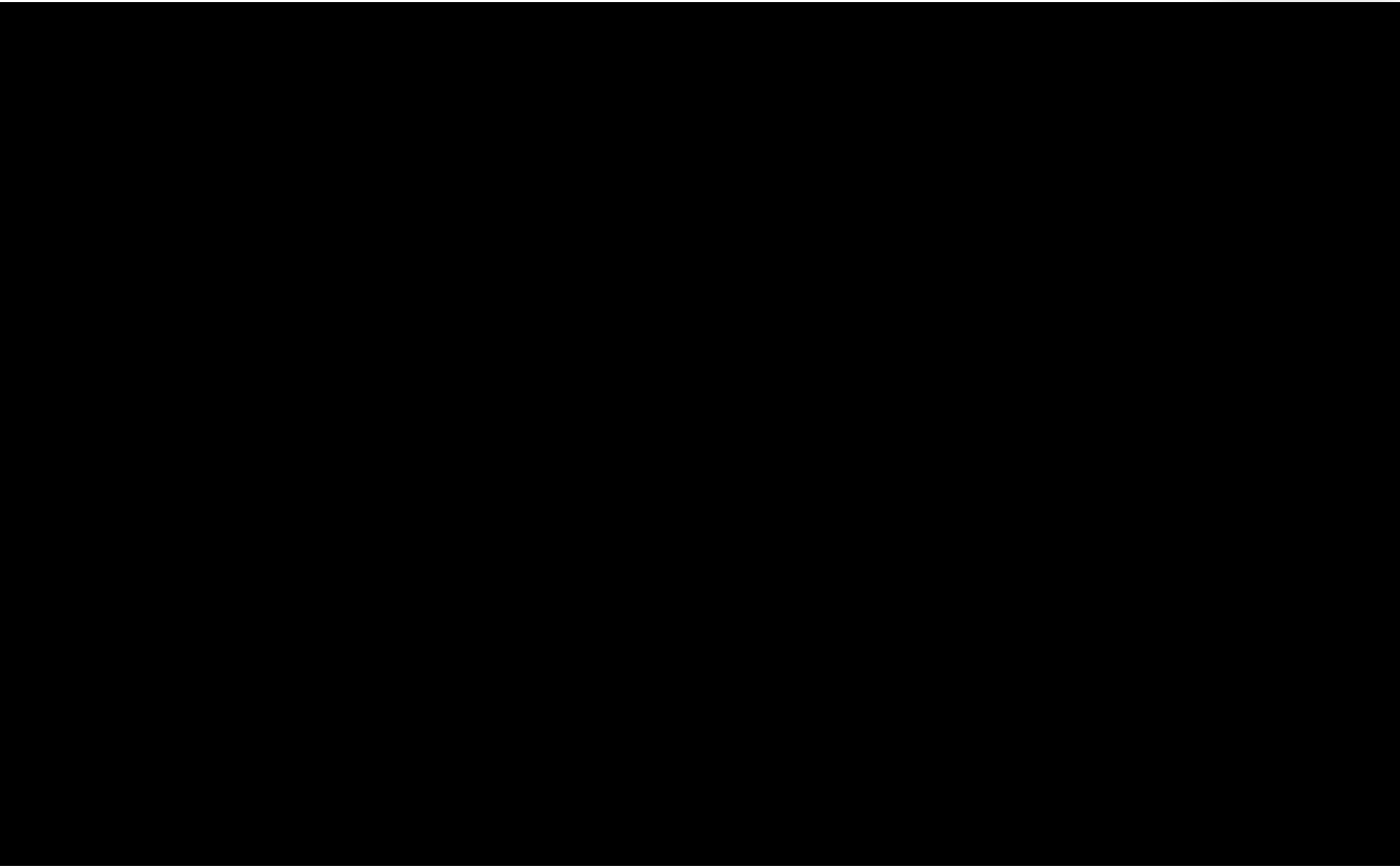
> Output to Creo View

> Measure vs. Measure graphs

> Animation on cutting planes



Creo Simulate 1.0: Output to Creo View

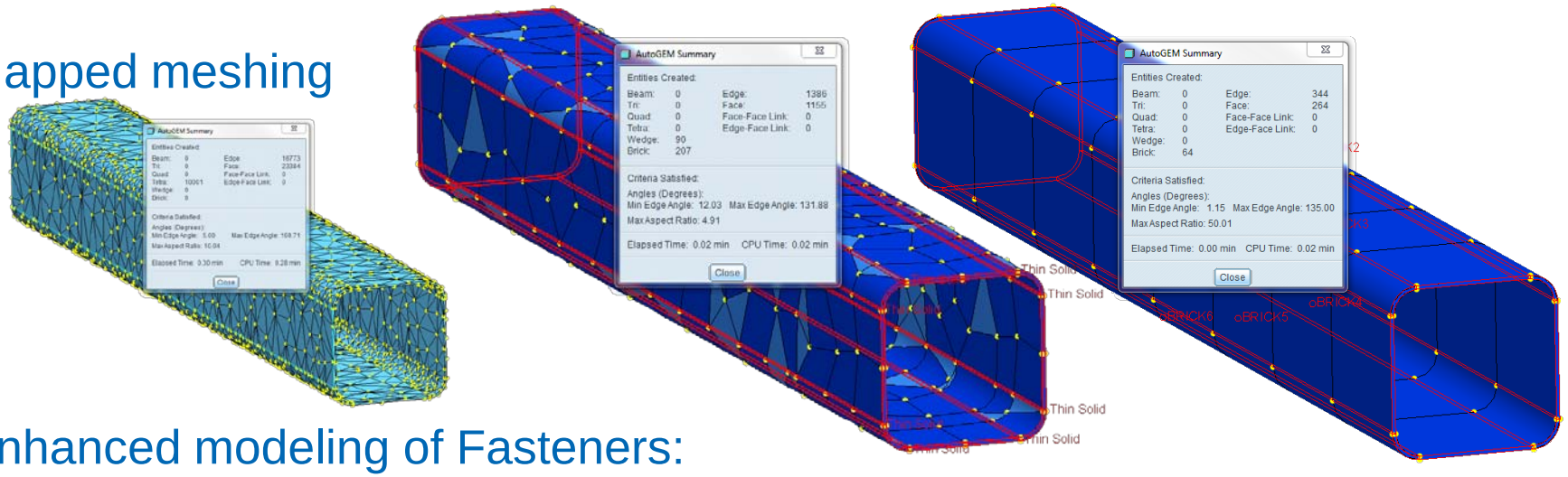


Creo Simulate 1.0: Robustness

> Ability to mesh thin regions with bricks and wedges

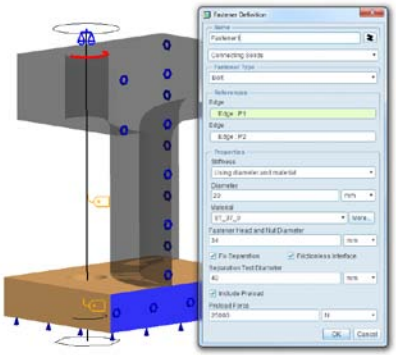
> Ability to mesh prismatic regions with bricks and wedges

> Mapped meshing



> Enhanced modeling of Fasteners:

- More accurate modeling of interface between bolted components
- Modeling of bending and torsion effects
- New measure calculations



> Filtering of –ve Buckling Factors

> Increased solver memory

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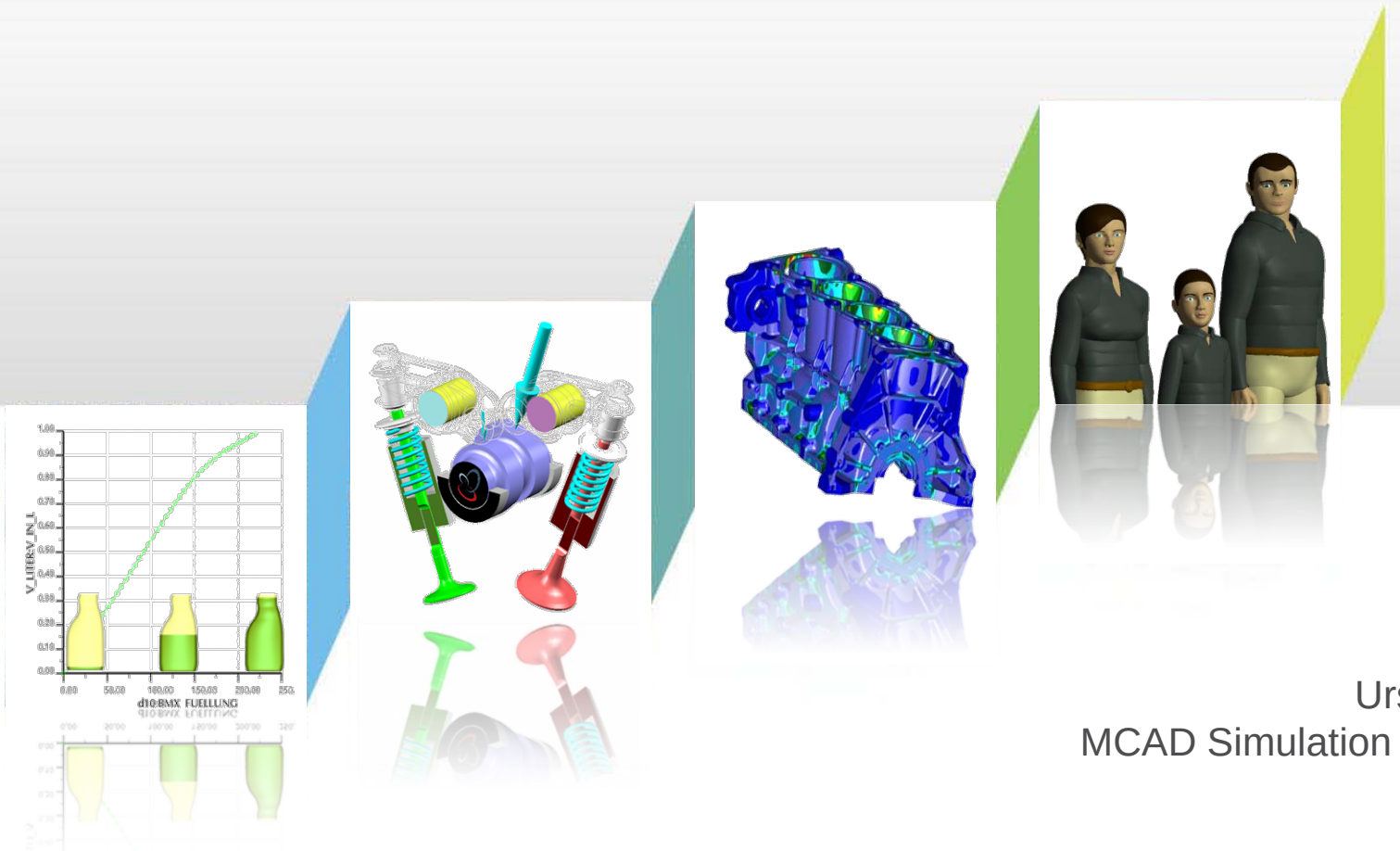
News Creo Simulate 2.0



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Creo Simulate 2.0: Engineering Functionality

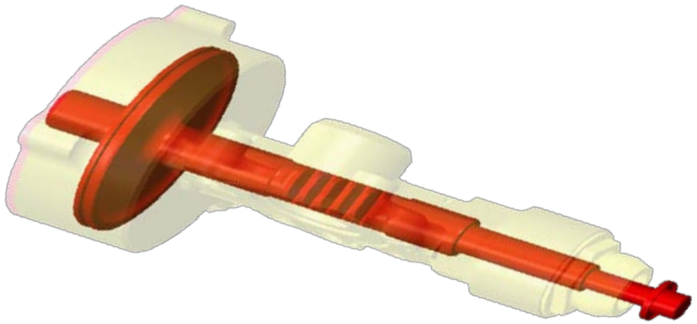
> Temperature History as Load of Nonlinear Static Analysis

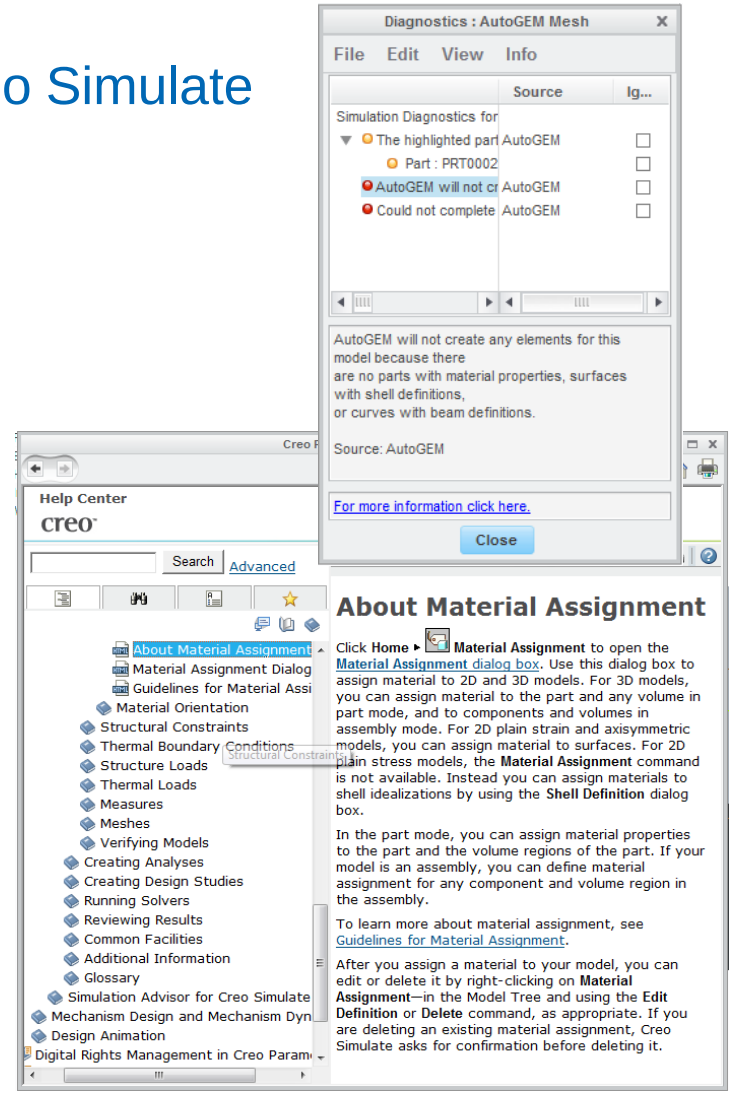
> Lightweight Assembly Representations in Creo Simulate

> Online Help Links in Diagnostics

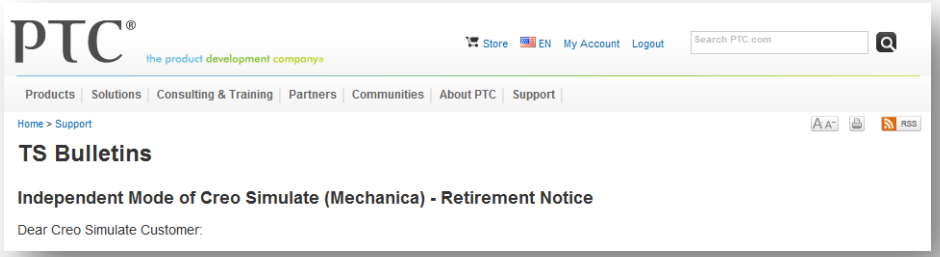
> Speedup of Dynamic Analysis Calculations

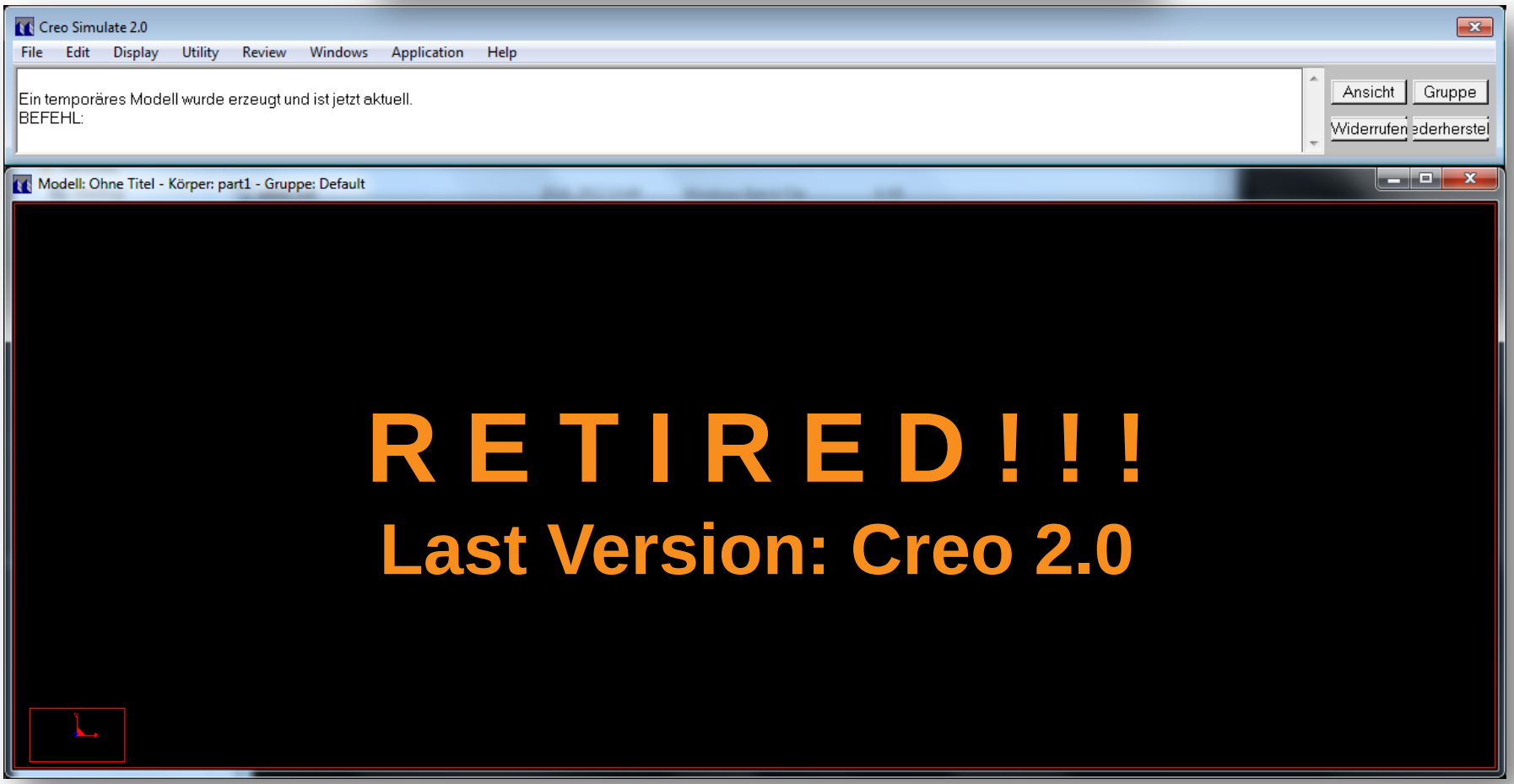
> General Performance Tuning





Independent Mode → Retirement





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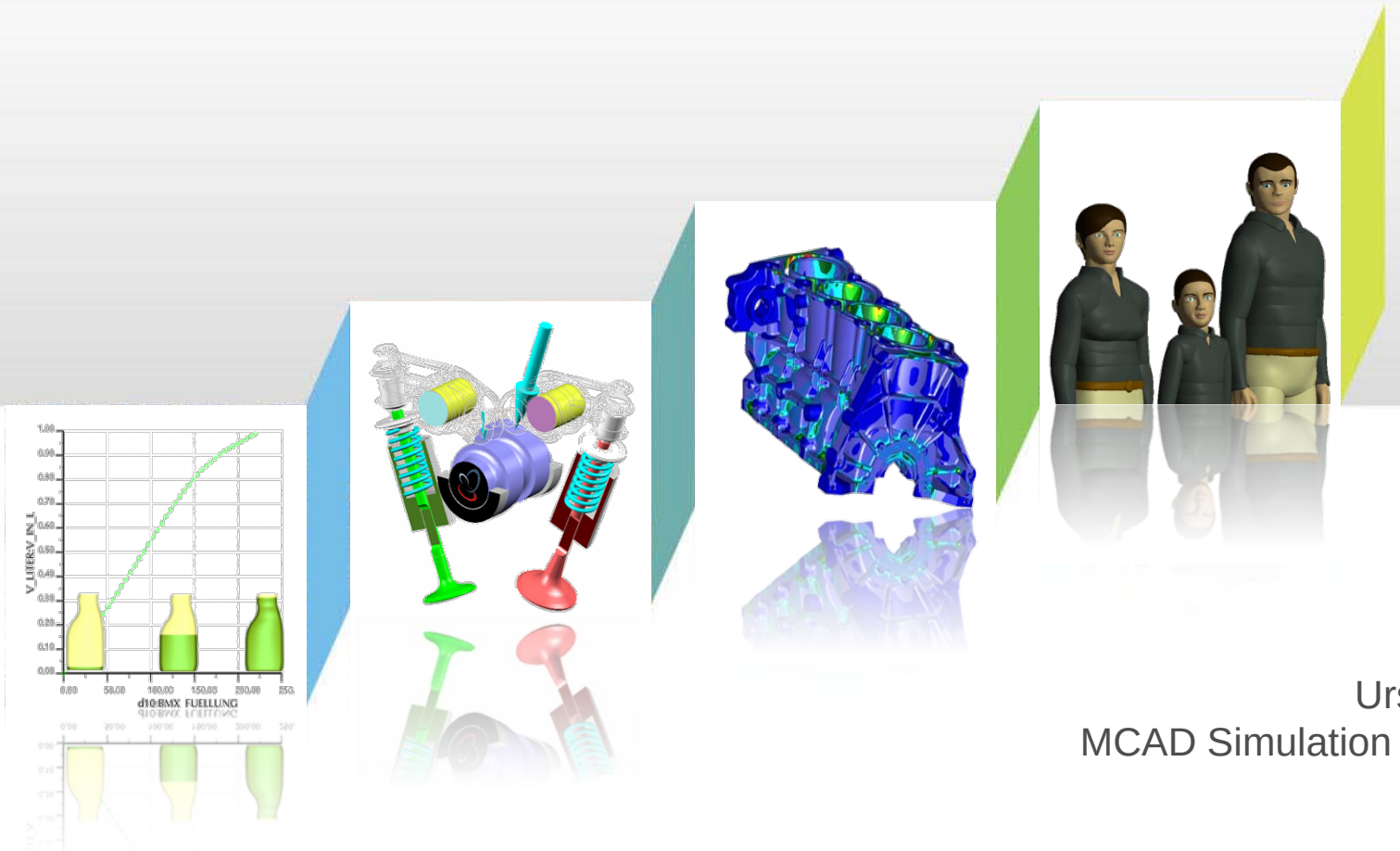
Future Plans Creo Simulate 3.0



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Future Plans Creo Simulate 3.0: Engineering Functionality

> Automatic Bolt Preloads

> Temperature Dependent materials for Generalized Temperature Loads

> Load Histories for Linear Analyses

> Weighted Links for 2D Analyses

> Fracture Mechanics: Stress Intensity Factor Measures

> Fatigue Analysis with Multiple Load Sets

> Distributed Springs

> Frictional Sliding Contact (Research)

> Flexible Bodies in Mechanisms (MDO) (Research)

Future Plans Creo Simulate 3.0: User Experience

> New User Experience in Results

> New UI for Linearized Stresses

> Improved Graphics for Mapped Meshes and Shells

> Analyses in Model Tree

> Beams displayed as Solids

> New Commands on RMB

> Mid-surface Features (Research)

Future Plans Creo Simulate 3.0: Miscellaneous

> Robustness:

- Models with Failed Features in Creo Simulate
- Improve FEM Quad Meshing Quality (Research)
- Run LDA if Necessary
- Misc. Mapped Meshing enhancements

> Performance:

- Nonlinear Analysis Performance

> FEM Mode:

- Close FEM gaps
  - Interpolated Loads
  - Shell/Solid links
  - Thermal Analysis in Nastran

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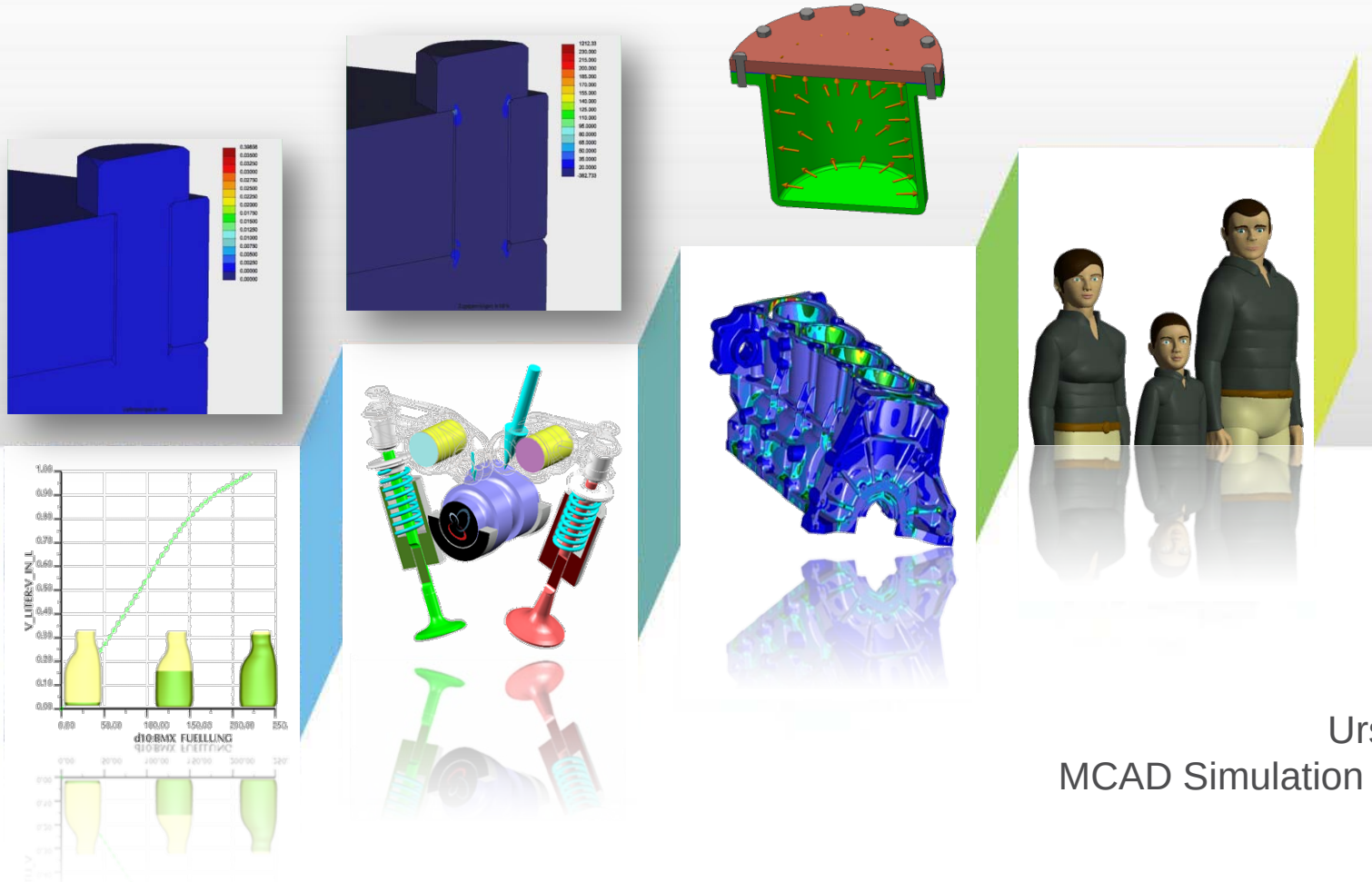

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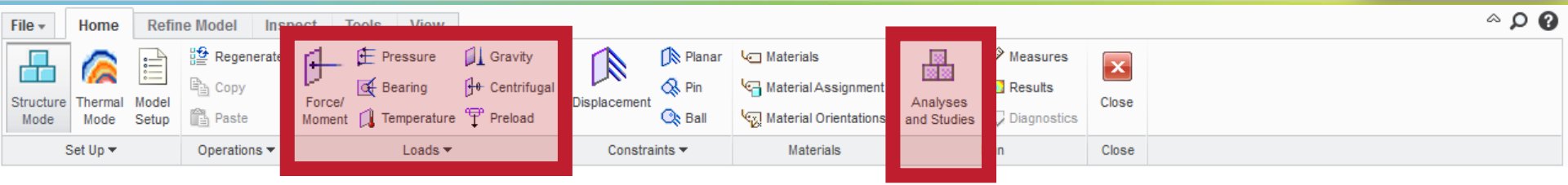
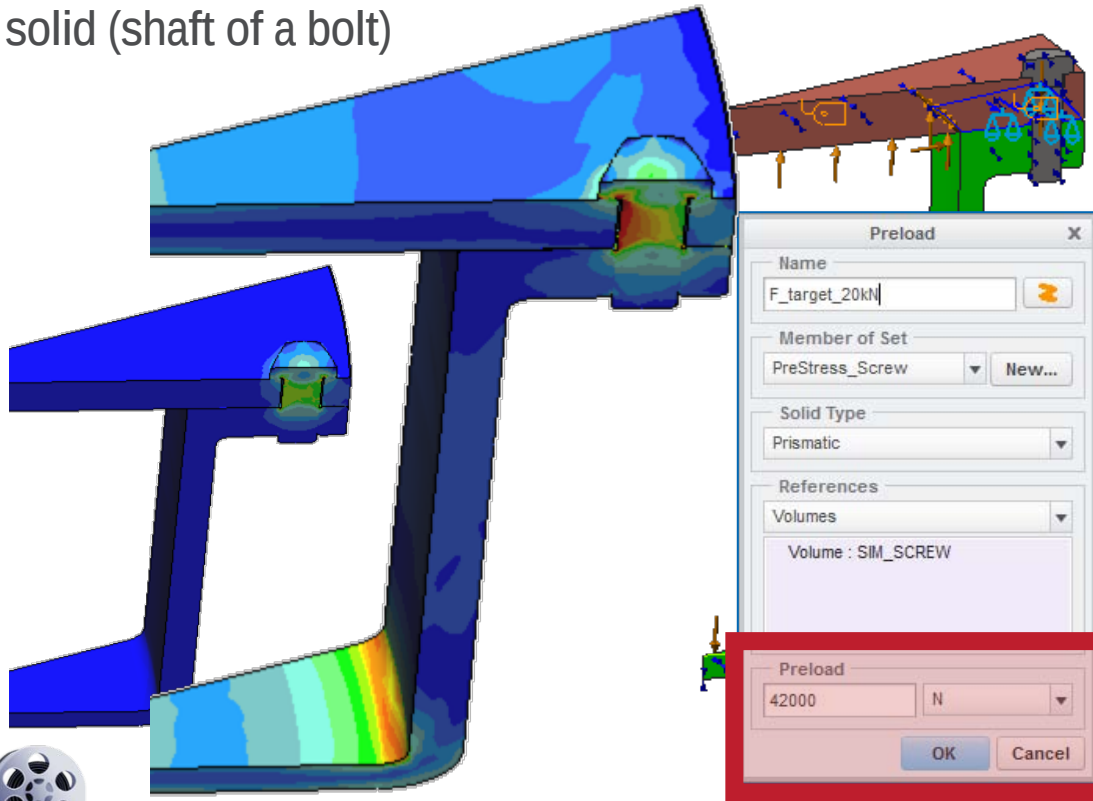
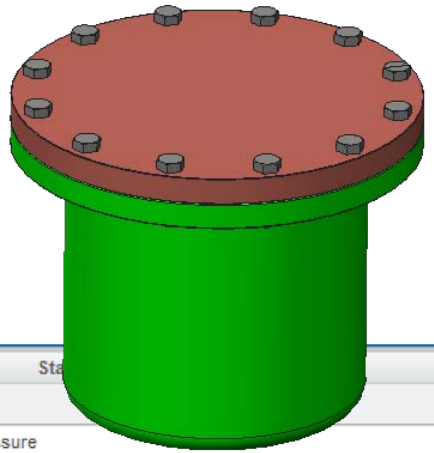
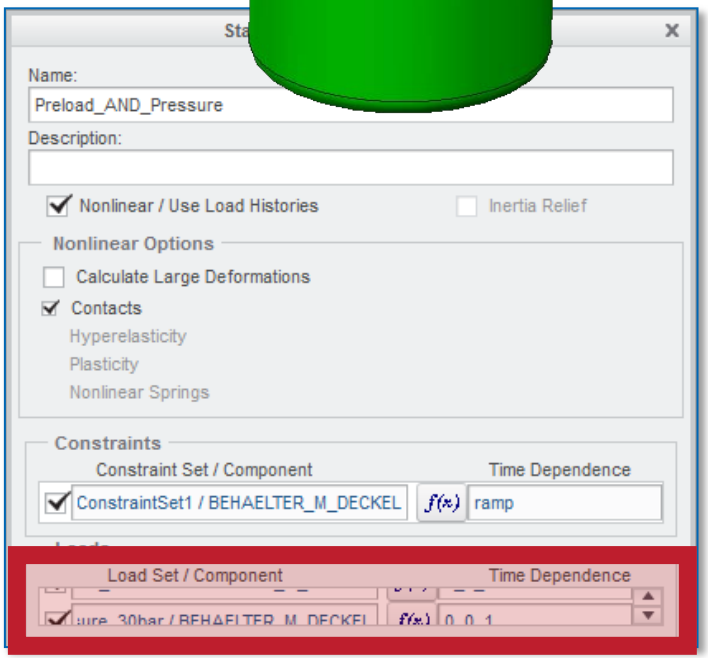


- LOADS, PRELOAD
- Automatically simulate a preload carried by a prismatic solid (shaft of a bolt)







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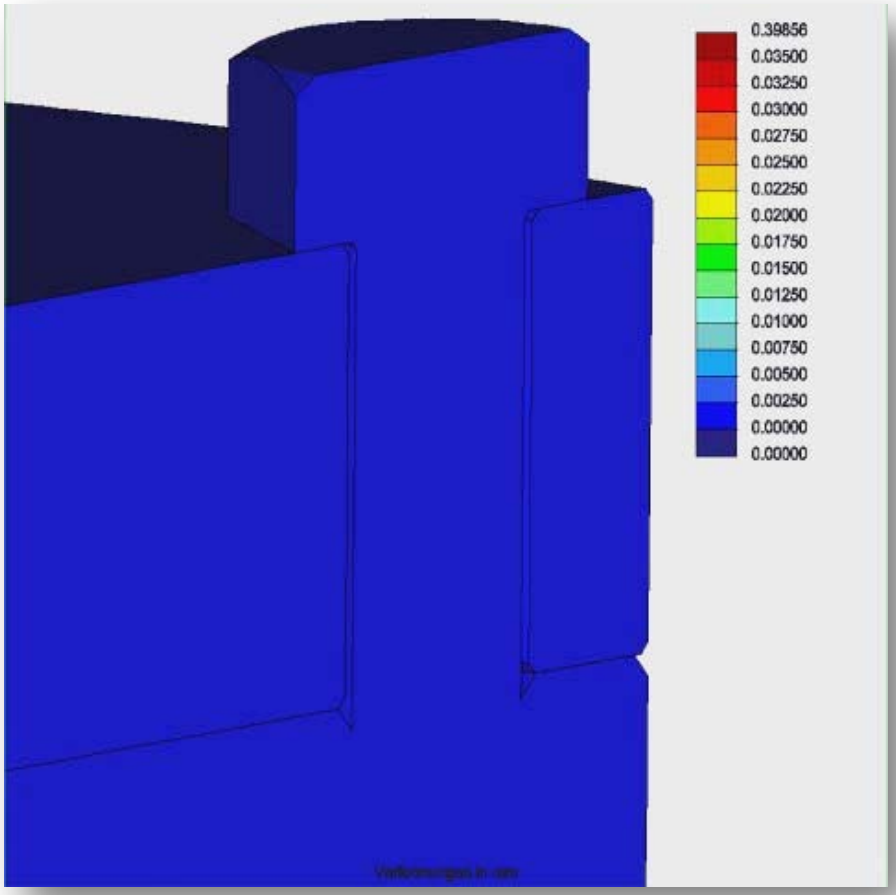
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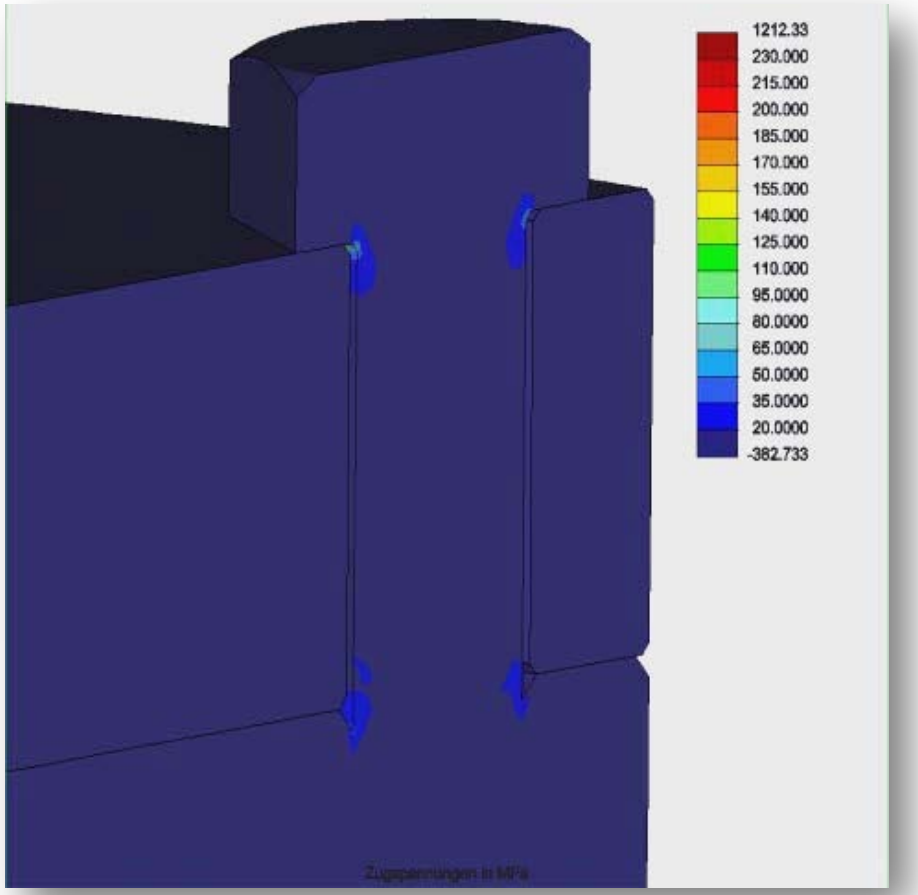
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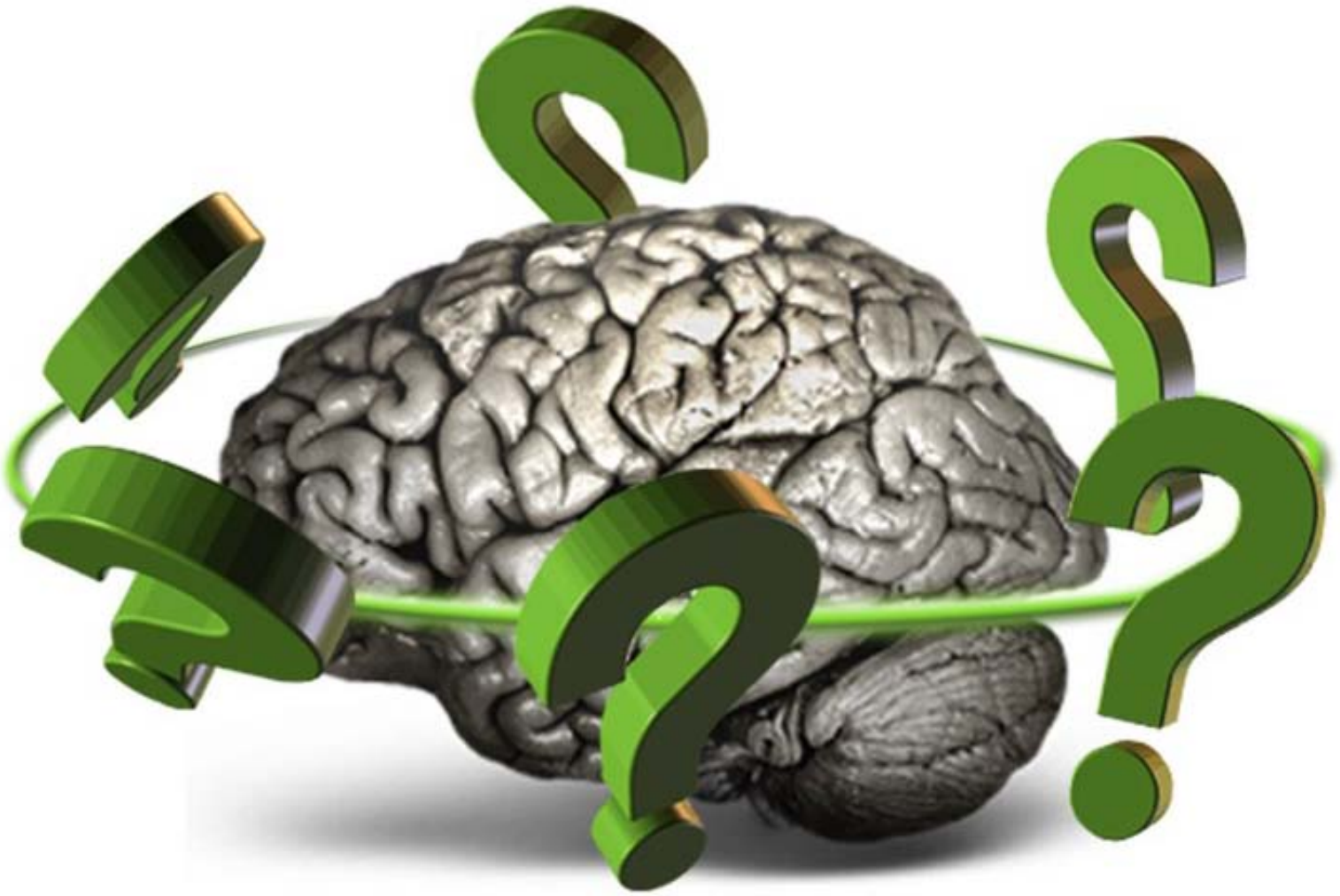

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Vielen Dank

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