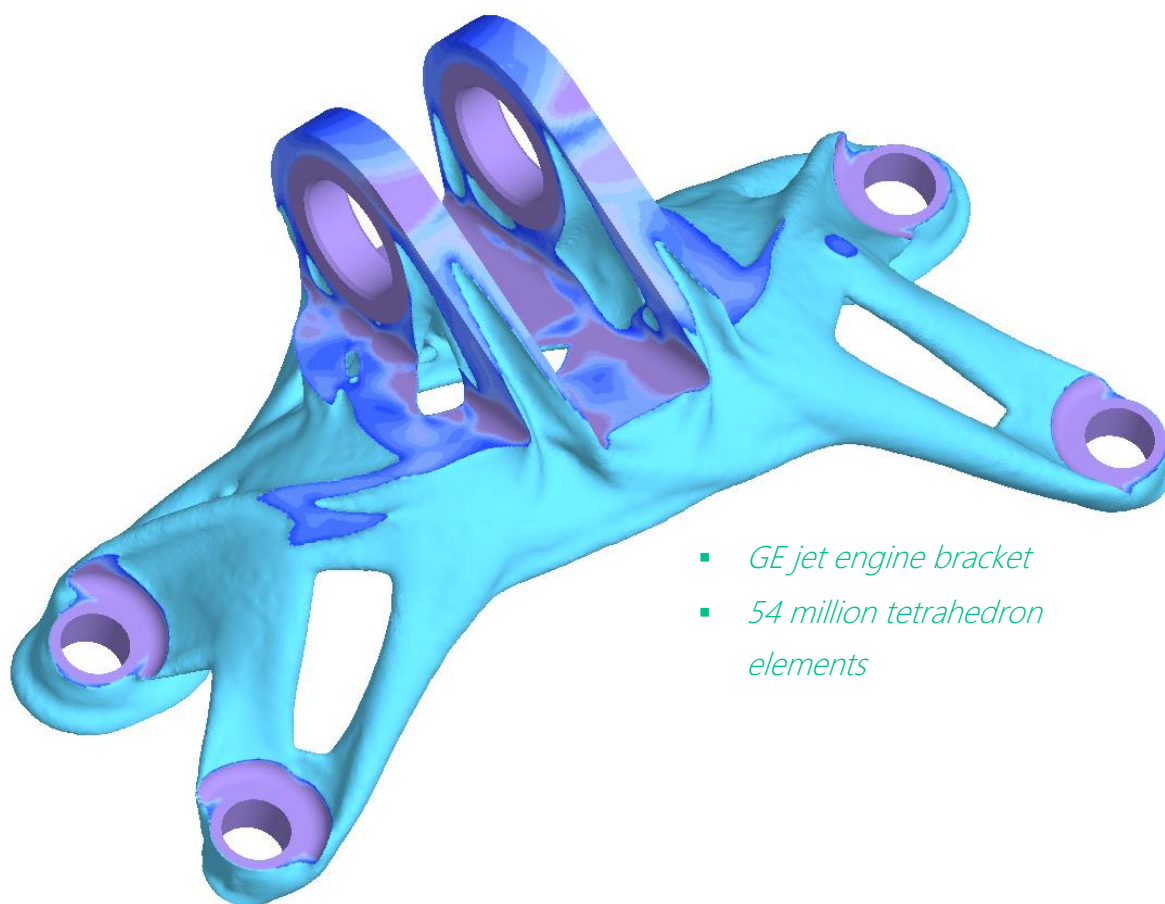


CAESS

## ProTop

*High performance topology optimization developed by engineers for engineers ...*

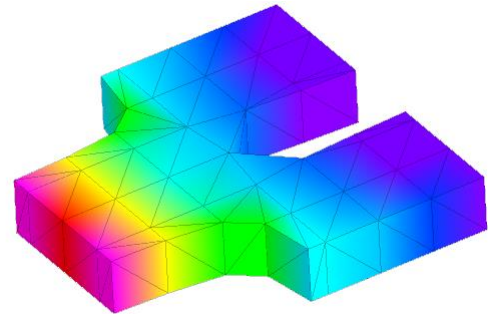
- *GE jet engine bracket*
- *54 million tetrahedron elements*



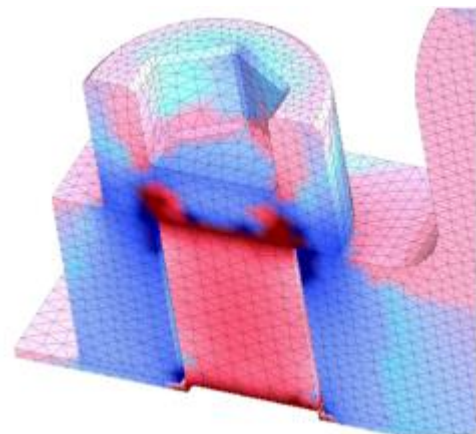
CAESS ProTop Ver: 3.1.6 Cyc: 145 VolPrt: 12.0  
Date: 02/28/2015 Inp: GE-optimization\_54M.ptop Own: CAESS d.o.o.

## A glance at the technology behind ...

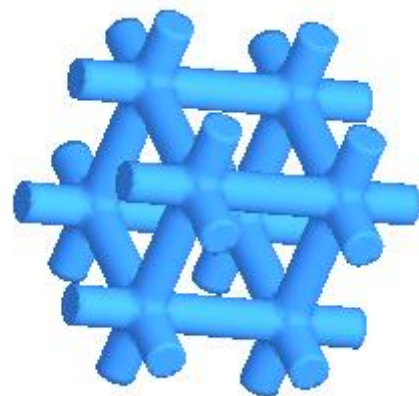
- Specialized custom-coded finite elements
- Hybrid custom-coded evolutionary/level-set optimizer
- High-performance sparse SLE solver
- Only highly parallelized HPC code



- Semi-active elements technology
- Smart Start-from functionality
- Interactive load cases management
- Special semi-contact elements for efficient contact and fastening modeling
- Special semi-plastic elements for better designs

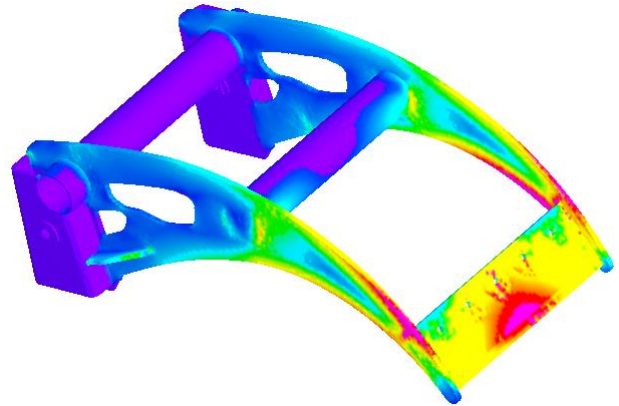


- Unique shell or/and lattice generation and optimization tools
- Numerical shell or lattice generation from solid models – no additional CAD work necessary
- Full 3D (solid finite elements) lattices - immediately ready for optimization with ProTop



# What ProTop can do for you ...

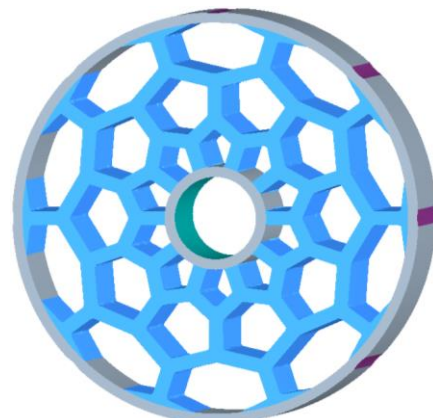
- Find efficiently minimum strain energy or maximum lowest eigenfrequency designs, exhibiting minimal stresses and removed stress concentrations
- Prolong the life-span and increase fatigue crack resistance of your structural parts
- Reduce the weight and material cost of your products



- Solve efficiently huge multi-million-element models, involving contacts and plasticity if needed
- Deliver high-quality optimized designs
- Smooth and improve the obtained design and export it to popular CAD and 3D printing formats

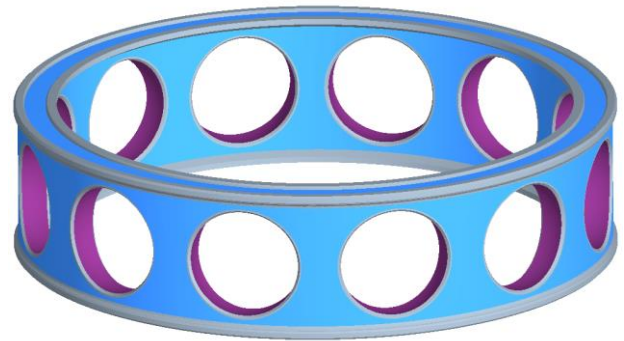


- Create easily innovative shell or/and lattice designs
- Generate and adjust your desired lattice configuration on the fly
- Optimize immediately your lattice structure to remove stress concentrations

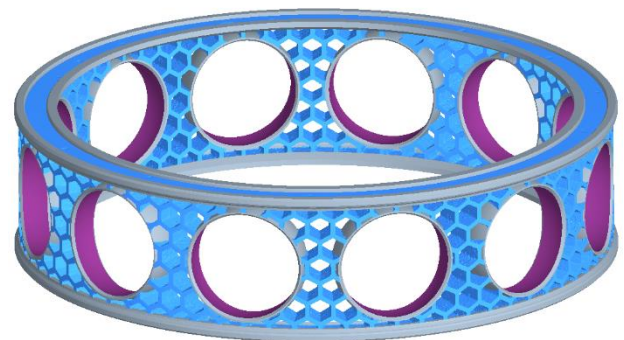


# Lattice structures in ProTop? Easily ...

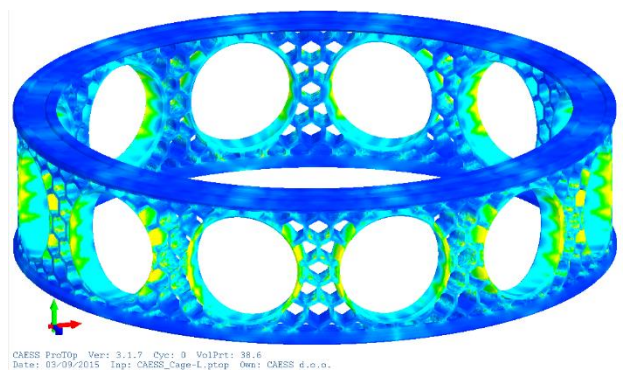
- Prepare the CAD model of your solid part in your favorite modeler
- Apply BCs as usually to define and complete your FEA model
- No need to bother with CAD modeling of a shell or lattice structure



- Import your FEA model into ProTop and select the desired lattice pattern
- Adjust your lattice configuration as desired
- Create any number of additional (different) lattice configurations if needed



- Check quickly your design by running ProTop initialization FEA
- Simply proceed with optimization cycles to improve the design and remove stress concentrations
- Engage ProTop export tools to smooth and export your design





Contact us at...

info@caess.eu

*We will be glad to discuss your needs and we will do our best to fulfill your expectations.*

Our location within Slovenia



and Europe

