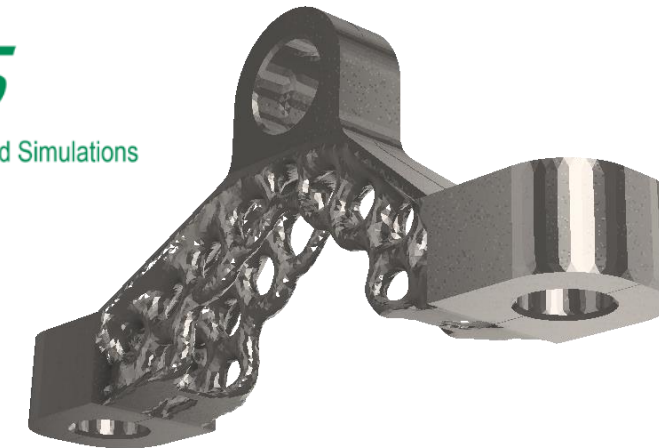
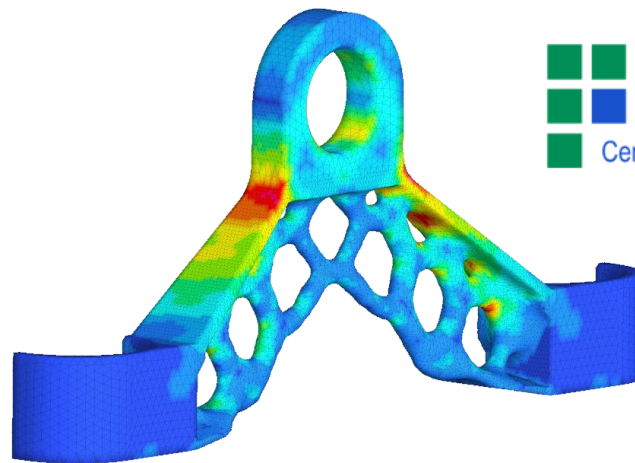
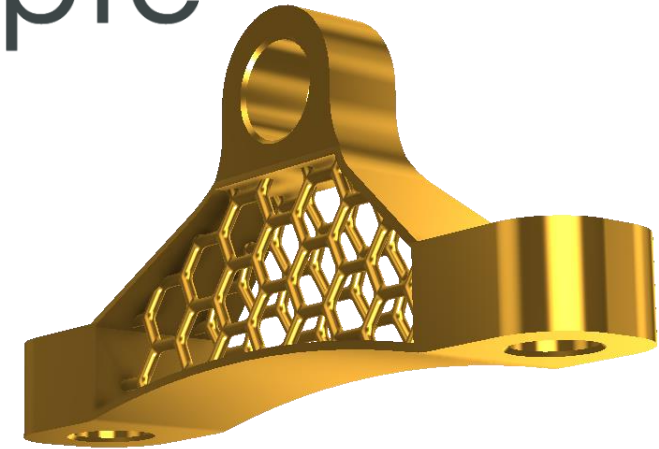
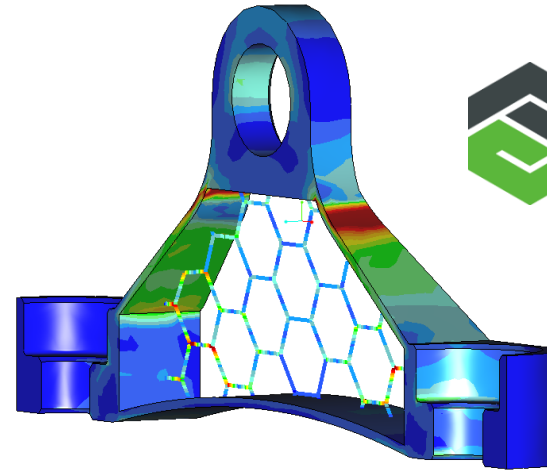




Vergleich von Stützstrukturen für die additive Fertigung: Creo Parametric/Simulate 4.0 ↔ ProTopCI



- Vorstellung Präsentator
- Vorstellung GIA Informatik AG
- Stützstrukturen für additive Fertigung mit:
 - Creo Parametric/Simulate 4.0
 - ProTOpCI (CAESS)
- Live Demo
- Fragen



- Fokus auf Creo Simulations-Lösungen
- Presales / Training / Consulting:
 - Creo Simulate (Pro Mechanica)
 - Creo Mechanism (MDX, MDO)
 - Creo Animation (DAO)
 - Creo Manikin
 - Creo Behavioral Modelling (BMX)
 - Creo Spark Analysis (SAX)
 - Creo Mold Analysis (MAX)
 - Mathcad
 - ProTOpCI (Topology Optimization, CAESS, PTC Partner Advantage Silver)
 - FLoEFD (CFD-Simulation, Mentor)
- 28 Jahre Simulations-Erfahrung
- davon 20 Jahre bei PTC als Application Engineer



Urs Simmler

CAD Simulations Experte

GIA Informatik AG (Schweiz)

mail: urs.simmler@gia.ch
mobile: **+41 76 574 90 16**



Oftringen

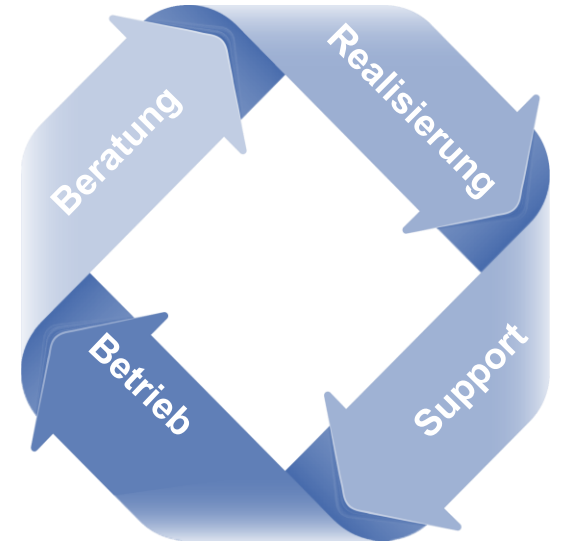
MÜLLER MARTINI

Seit 1988 mitten in der Schweiz

145 erfahrene Mitarbeitende

Unternehmen der Müller Martini Gruppe

- SAP Lösungen
- IT-Services
- CAD / CAM / CAE / PLM



Partner

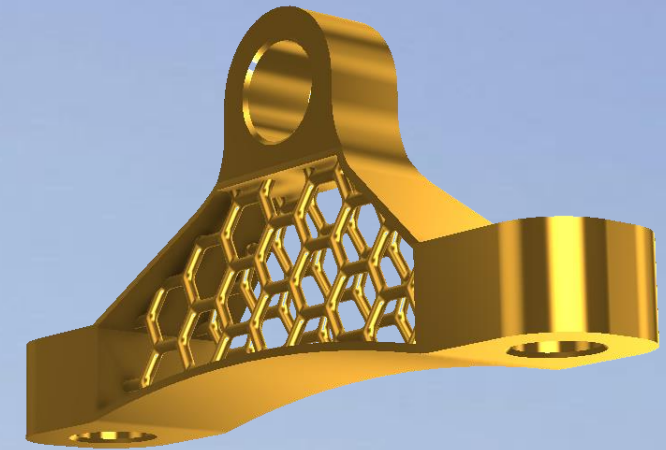
Microsoft Partner
Gold Datacenter
Silver Devices and Deployment

SAP® Certified
in Hosting Services

SAP® Certified
in Cloud Services

Partner

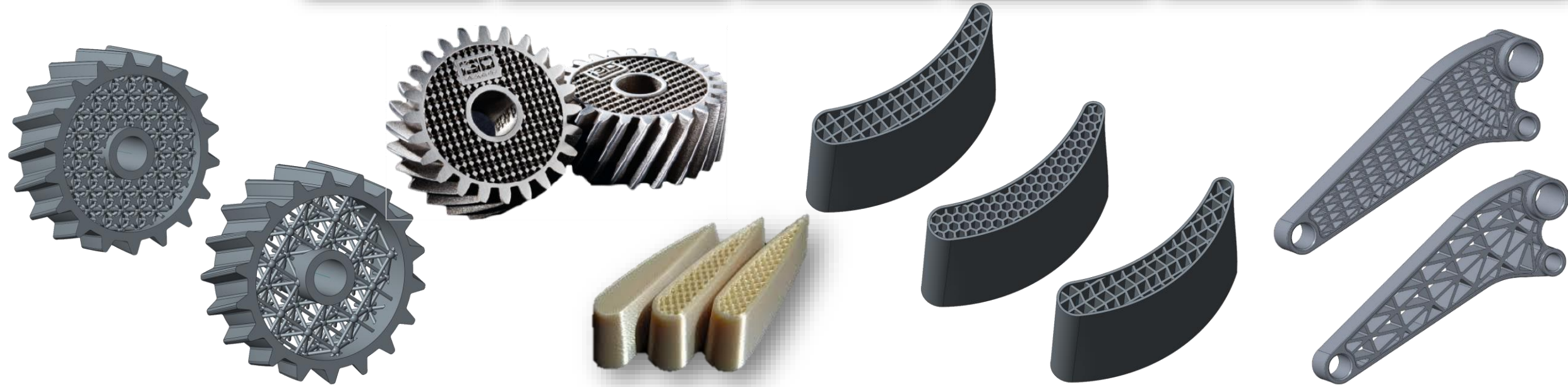
partner network
channel



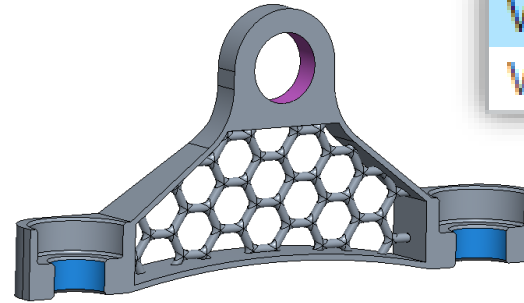
Stützstrukturen für additive Fertigung mit: - Creo Parametric/Simulate 4.0

• 2^{1/2}D-, 3D-Gitterstrukturen

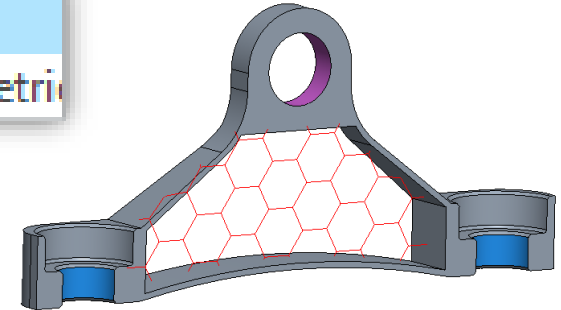
- steuerbar mit:
 - Referenzen
 - Zelle
 - Balken
 - Dichte



- Als Volumen rechnen
- Idealisierungen verwenden
 - Balken
 - Schalen

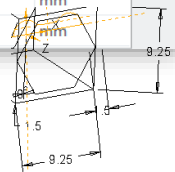


Vereinfacht
Vollständige Geometrie

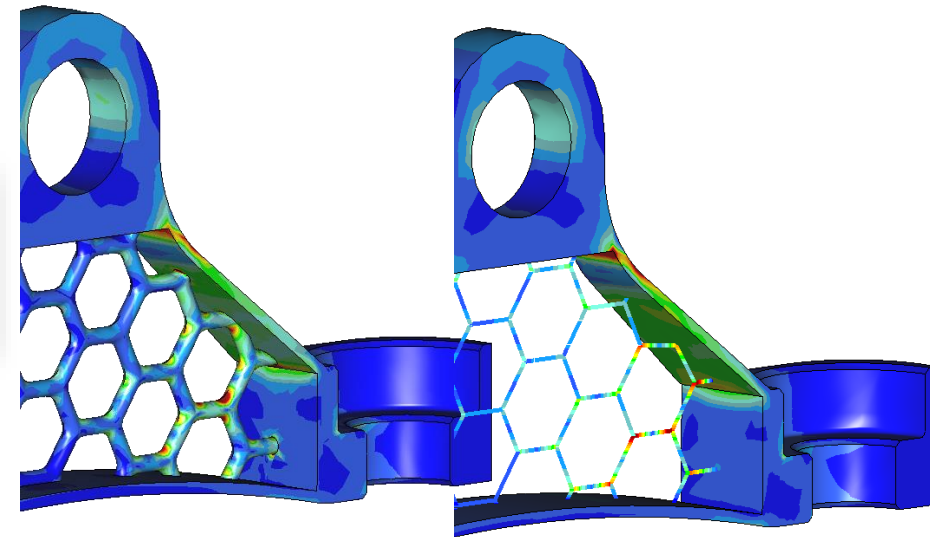


- «NUR» Parameter-Optimierung machbar

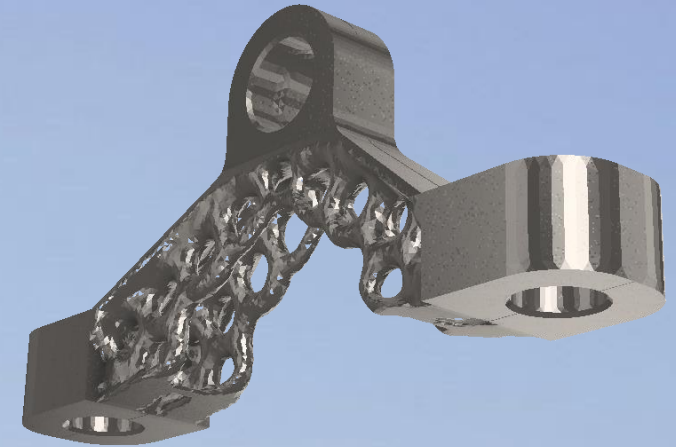
Variable	Aktuell	Minimum	Ursprünglich	Maximum	Einheiten
d81	1.5	1	1.5	2	mm
d75	1.5	1	1.5	2	mm
d73	12	10	12	20	mm
d71	9.25	9	9.25	10	mm
d72	9.25	9	9.25	10	mm



- Vorteil:
 - integriert in Creo
 - Parametrische Geometrie



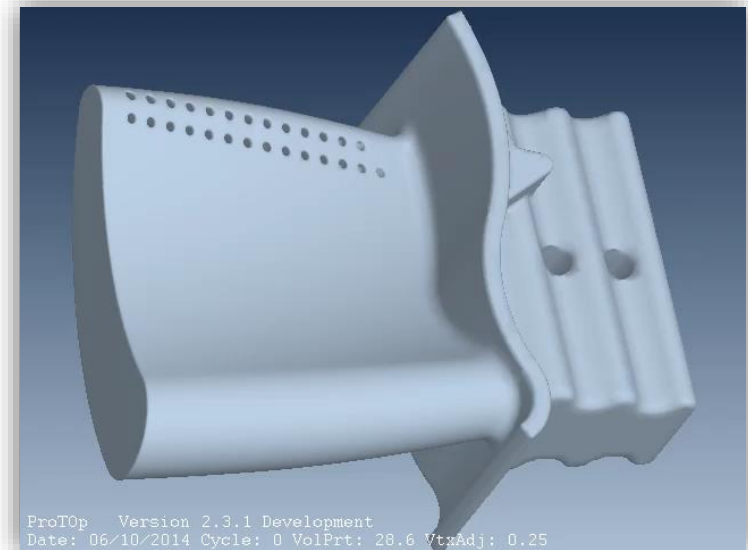
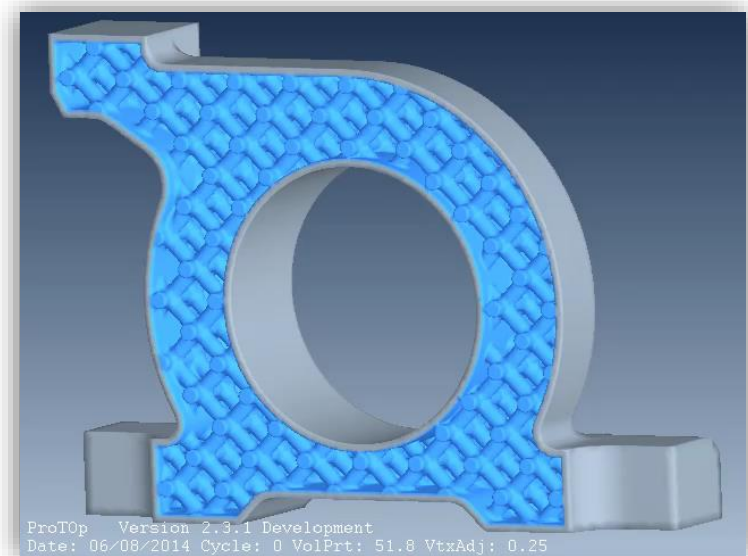
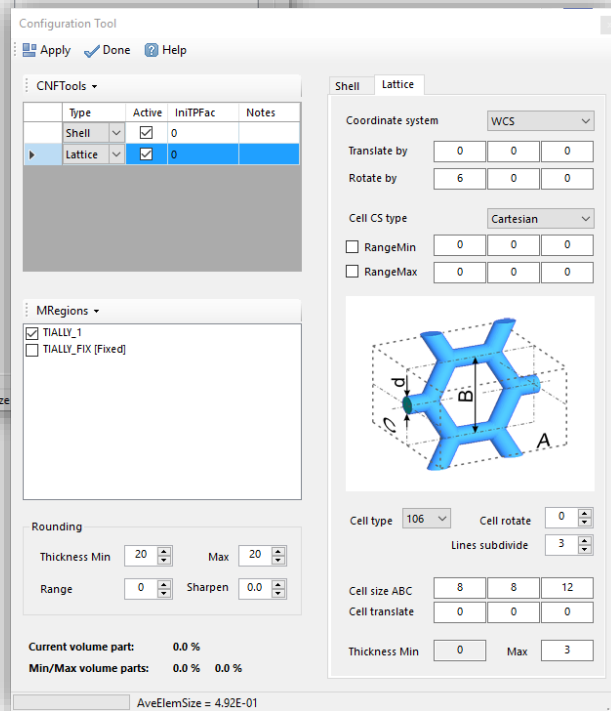
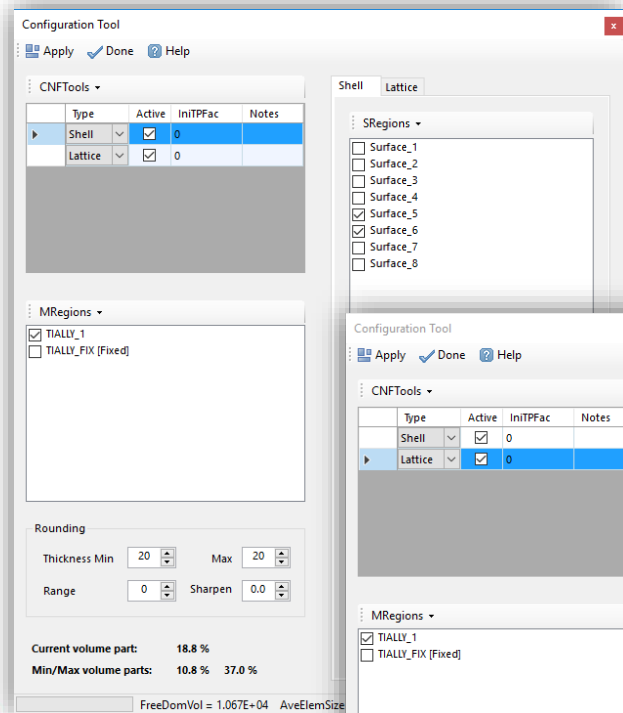
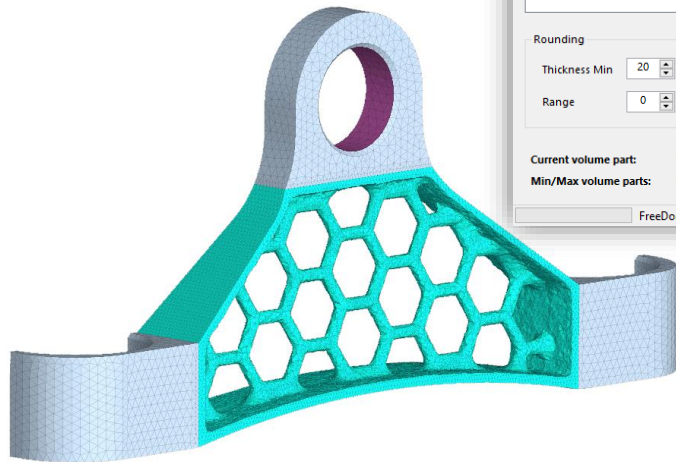
- Nachteil:
 - KEINE echte (Topologie-)Optimierung der Gitterstrukturen
 - Ungenaue Spannungsergebnisse bei Verwendung von Idealisierungen



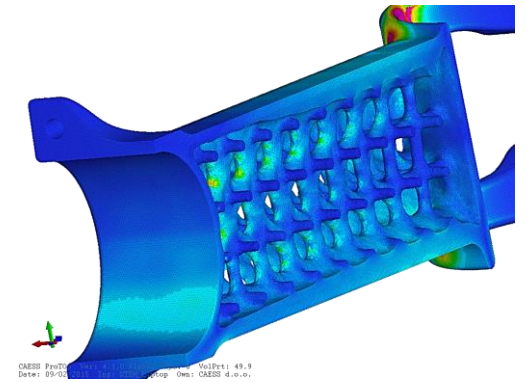
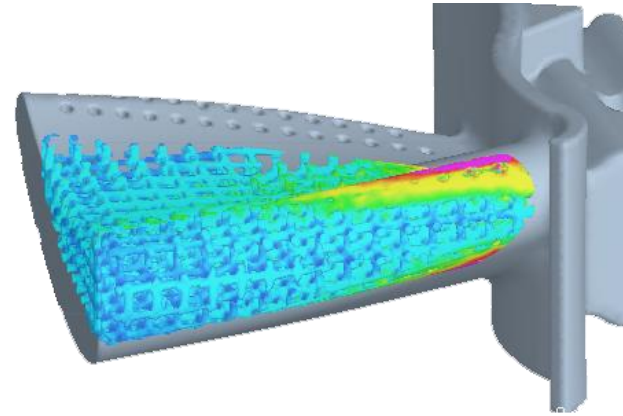
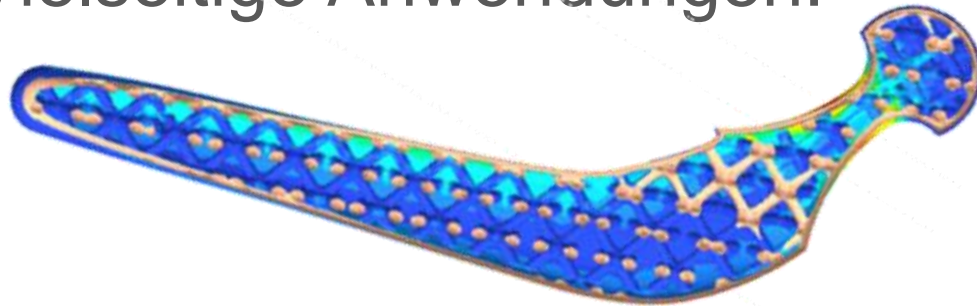
Stützstrukturen für additive Fertigung mit: - ProTopCI (CAESS)

- Flexible Konfiguration mit Hilfe von:

- Solids
- Shells
- Lattices

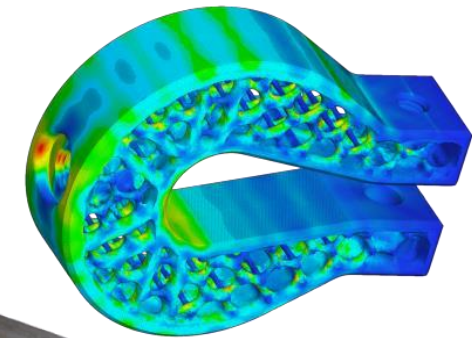
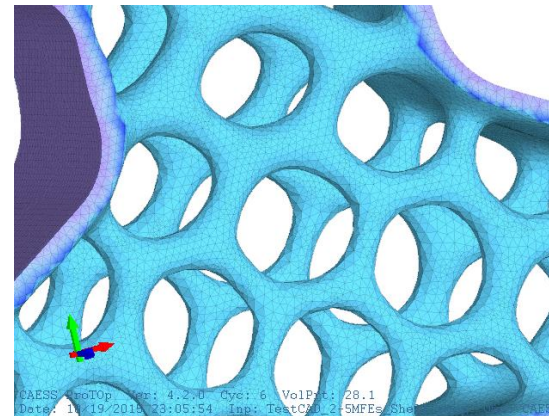


- Vielseitige Anwendungen:

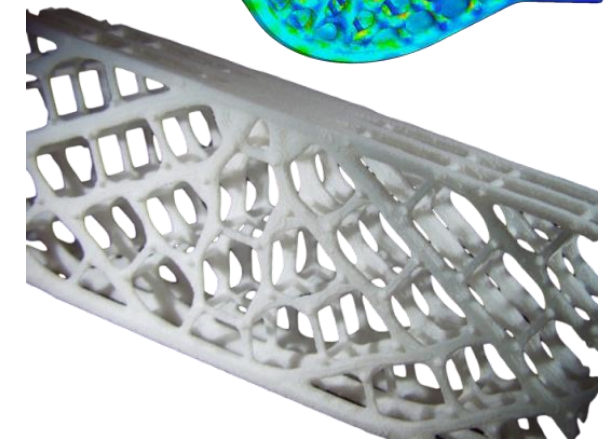


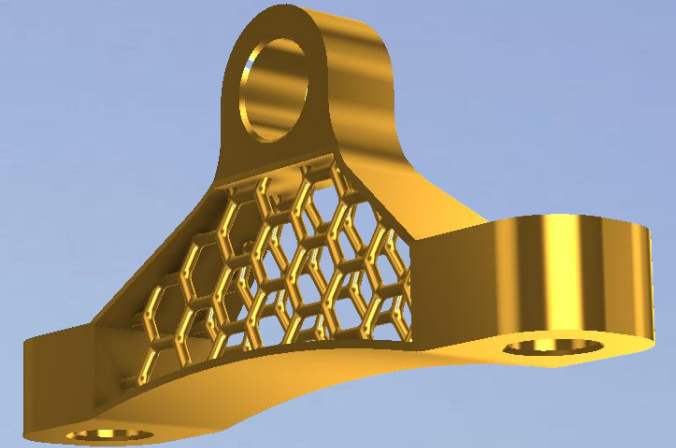
- Geometrie direkt für 3D-Drucker verwendbar:

- Vorteil:
 - ECHTE Topologieoptimierung
 - Innovative Design-Ideen



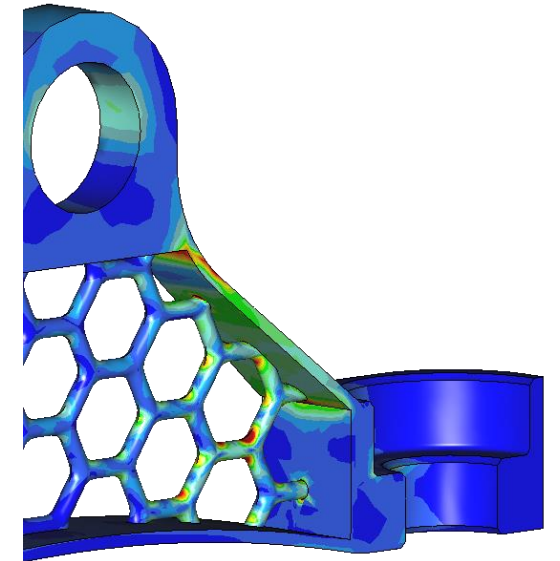
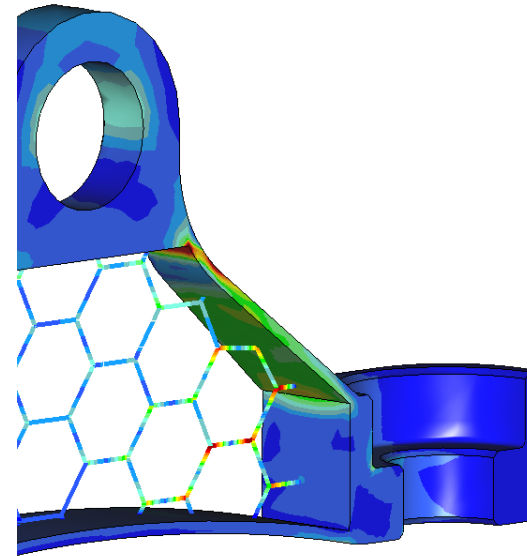
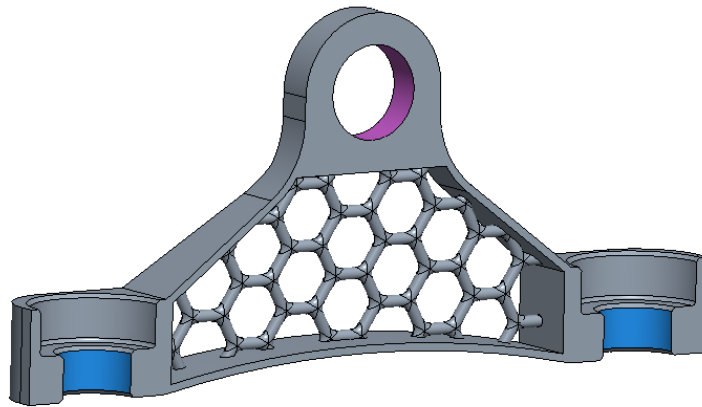
- Nachteil:
 - tesselierte Geometrie



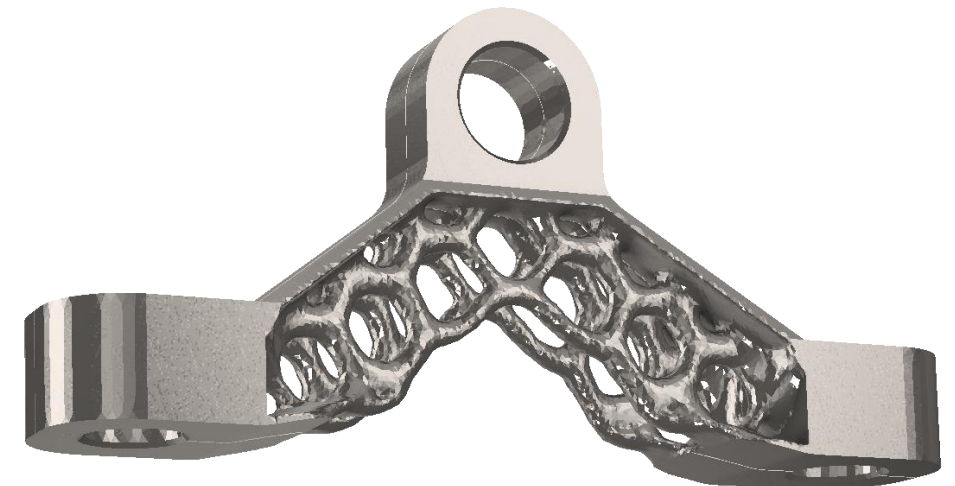
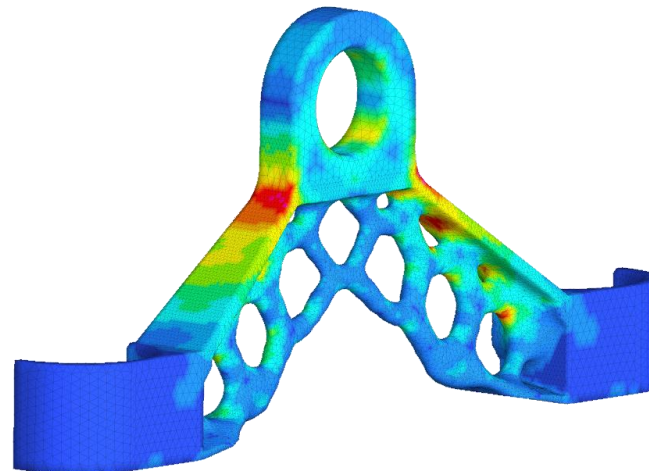
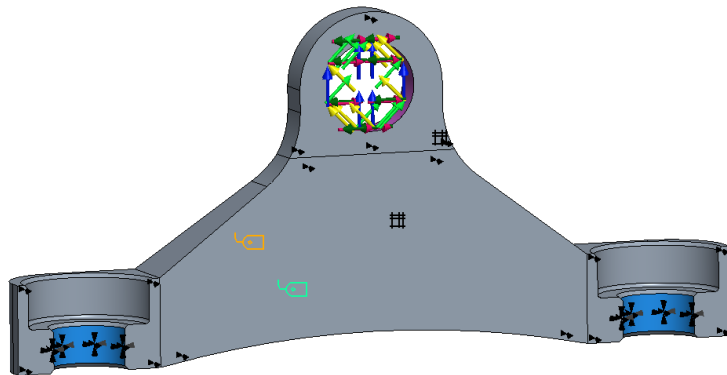


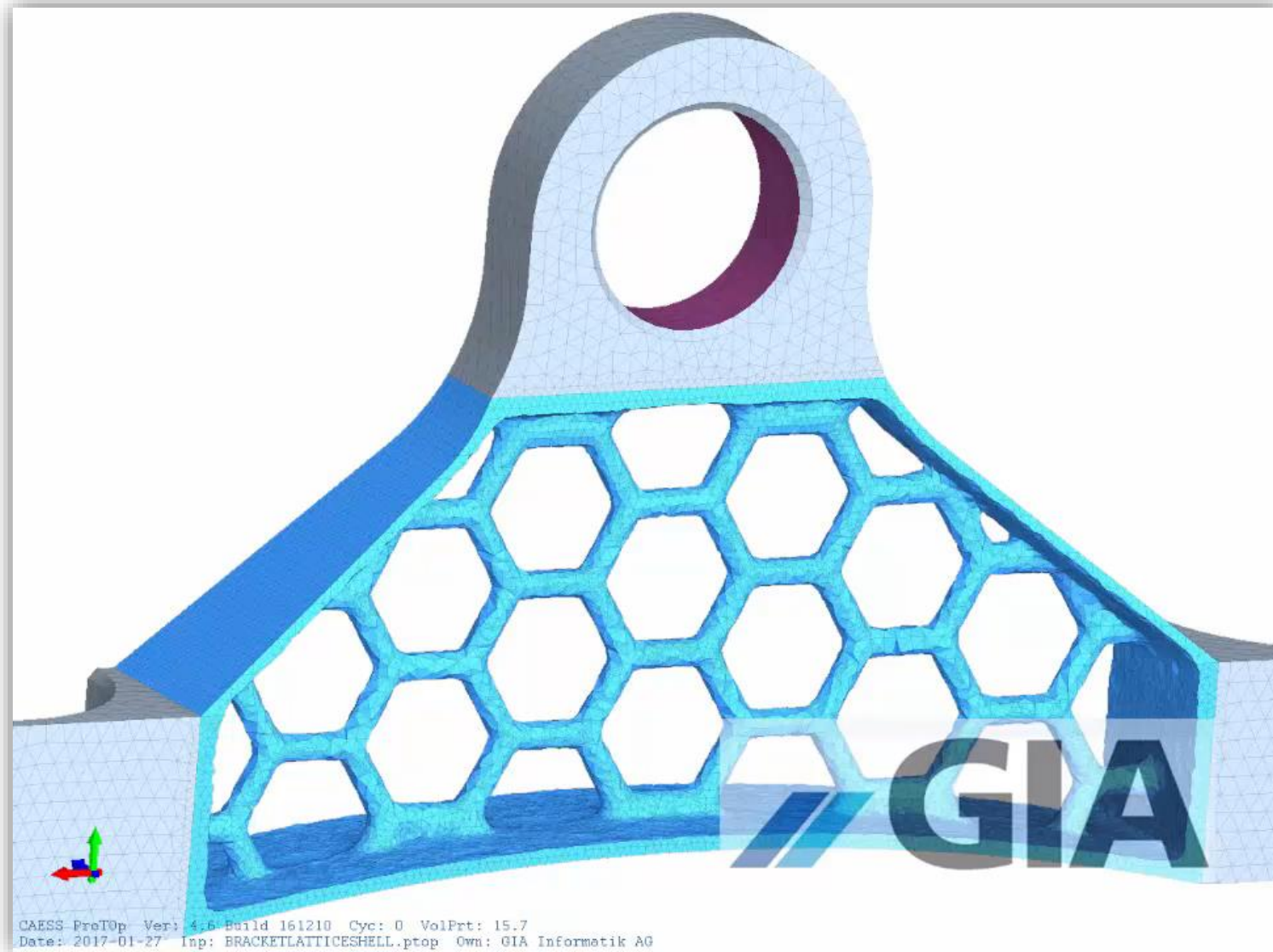
Live Demo

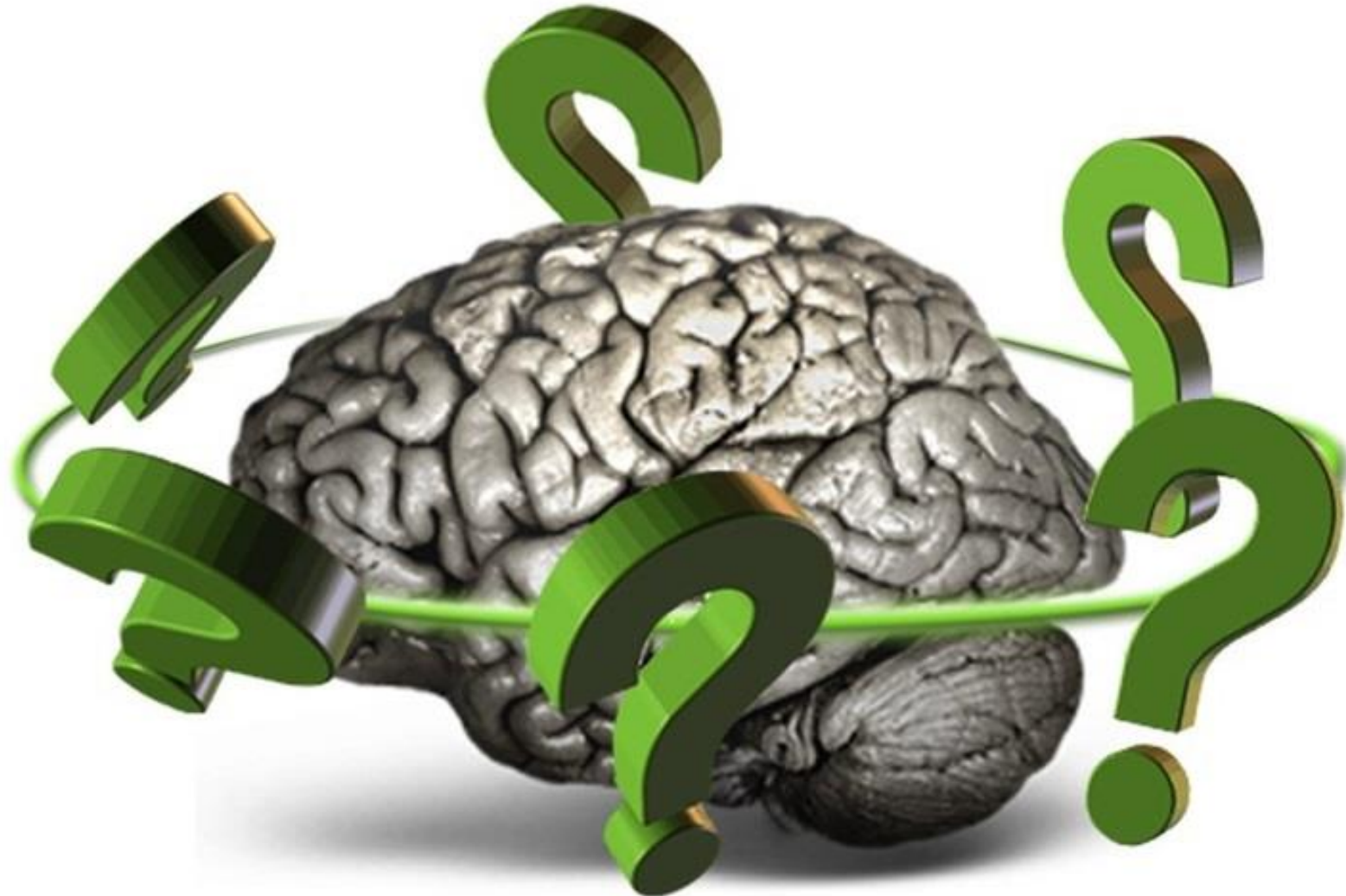
- CREO Parametric & Creo Simulate



- ProTOPCI

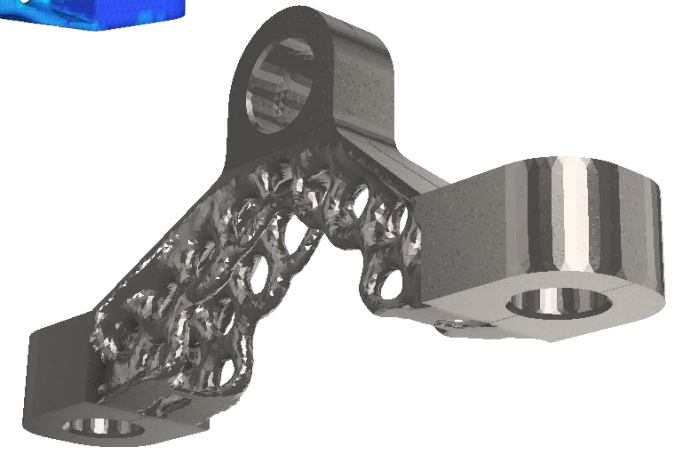
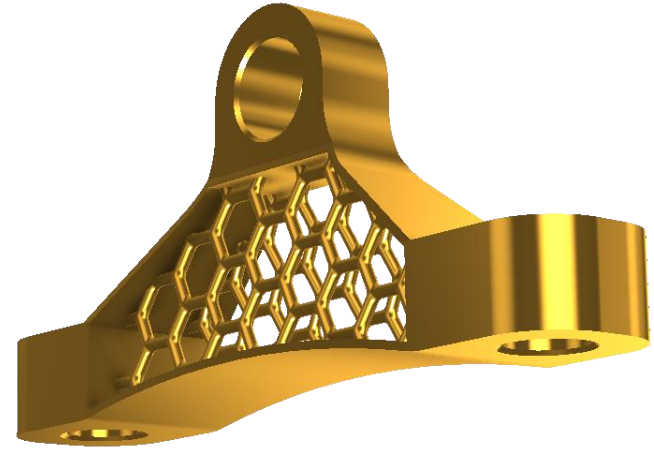
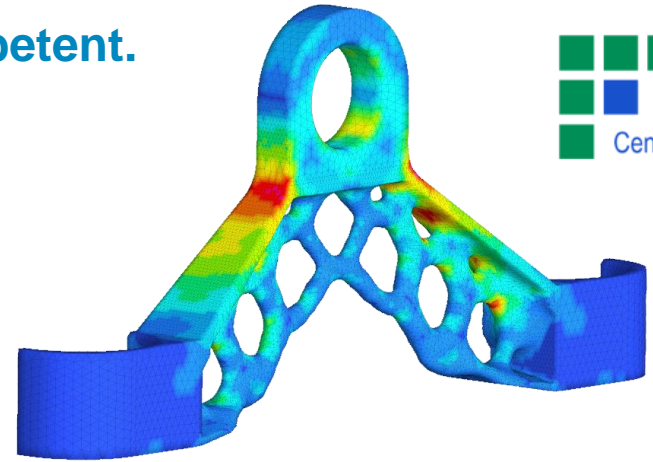
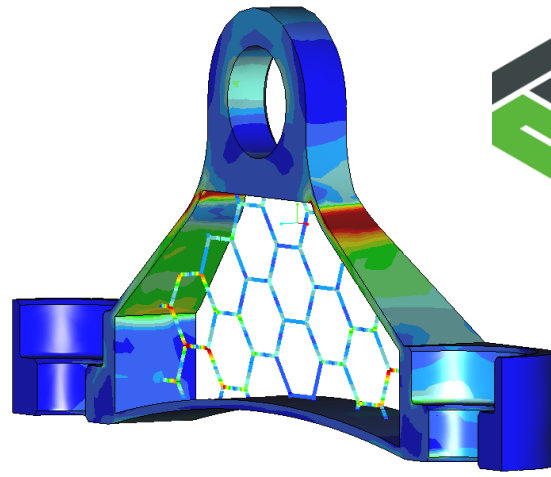








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Vielen Dank