From 3D Images to Simulation with Simpleware and COMSOL
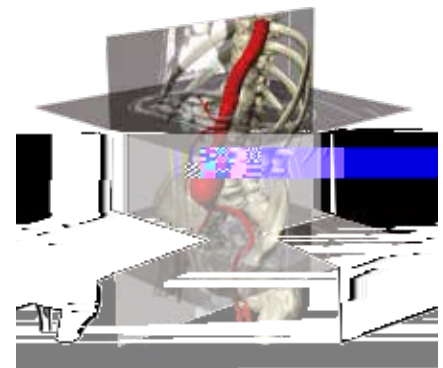
Simpleware software provides solutions for generating high-quality models from 3D image data (MRI, CT, micro-CT, FIB-SEM…) for direct export to COMSOL Multiphysics© software. This solution is smooth and robust for workflows using complex image data, and opens up a wide range of applications for COMSOL users needing a straightforward route from scan to CAD, FEA and CFD models that represent real world geometries.

Simpleware Key Benefits

- + P F W U V T [N G C F K P I ' P K mesh quality
- Fast and time-saving workflow
- Dedicated COMSOL Multiphysics© export (.mph and .mphtxt)
- Work with wide range of 3D image F C V C C P F % # & ' N G U
- Easy-to-use and intuitive interface
- Customizable, including scripting
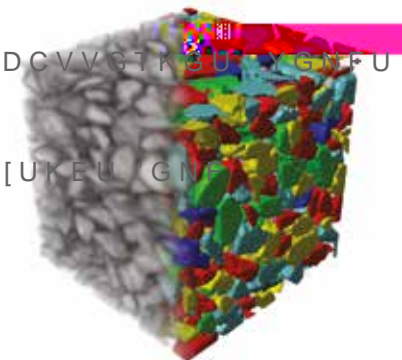- Extensive technical support and consulting services

Simpleware Features

- Automated multi-part meshing for structural FEA and CFD
- Fix models (dirty CAD, orphan/deformed meshes, Booleans…)
- Rapid image data visualization and animation in 2D and 3D
- Comprehensive image processing & analysis tools
- CAD integration & NURBS (IGES) export
- FE-based homogenization modules

Selection of Application Areas for COMSOL Multiphysics © Users

- Life Sciences
  G g. medical devices, orthopedics, physiological flows…
- Materials Science
  G g. alloys, composites, soils, concrete, porous media, plastics, rubbers…
- Reverse (ngineering
  G g. automotive, aerospace, consumer and legacy products…
- Industrial NDT
  e.g. product design, industrial ' N V G T U H W G N E G N N U D C V V G T K G U Y G N + U
- Oil & Gas
  e.g. digital rock physics, special E Q T G C P C N [U K U I G Q R J [U K E U G N data…
- Synthetics
  e.g. textiles, ceramics, insulation O C V G T K C N U ' D T G U

Effects of Porosity on the Elastic Properties of Synthetic Graphite

G. Sowa • R. Paul • R. Smith

GrafTech International, Parma, USA

Graphite is a versatile material used by GrafTech for solutions in applications such as thermal management and insulation. This study looks at the effects of porosity on the elastic properties of synthetic graphite. Industrial CT images of synthetic graphite were imported into Simpleware for visualization, measurement and segmentation inc.253 0 Td (M)Tj 0.834 0 Td (.)Tj (L)Tj 0.953 0 Td (u)Tj 0.008 Tc -0.008 Tw 0.536 0 Td (is)Tj 0 Tc 0 Tw (i)Tj 0.943

Simpleware Software Solutions

The Simpleware product group at Synopsys develops software for the conversion of 3D scan data (MRI, CT, micro-CT...) into high quality design,

NDE, and Oil and Gas. Easy-to-learn and use, the software offers a robust bridge between the latest imaging technologies and multiple design and simulation applications.

For more information go to www.simpleware.com

Synopsys (N.E.) Ltd
Bradninch Hall, Castle Street
Exeter, Devon
EX4 3PL, UK

International Sales: +44 (0)1392 428 750
U.S. Sales: +1 (443)-741-3327
India Sales: +91 (0)820-9681120
Email: simpleware@synopsys.com