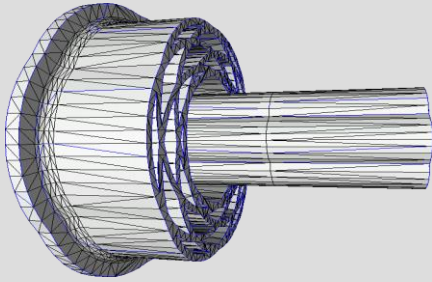


Mesh Generator ART¹⁾



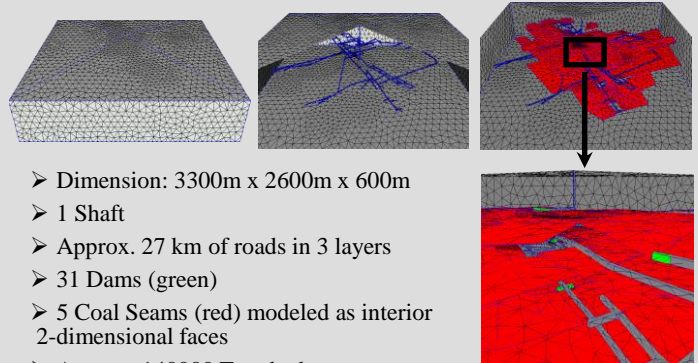
The creation of a mesh is a critical step in applying finite-element methods for solving partial-differential equations. ART (Almost Regular Triangulations) is a Delaunay-based Mesh Generator for the fully automatic generation of complex three-dimensional meshes.

Key Features

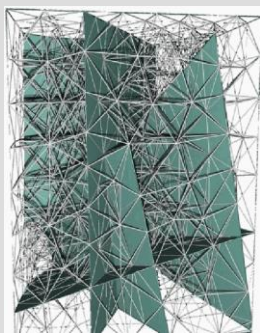
The most commonly used features of ART are:

- Automatic 3D Mesh Generator
- Coupled 1D/2D/3D Elements
- Easy Control of Mesh Density
- Multizone Mesh Generation
- Internal Surface, Lines, etc.
- Coarse Grid Generation for Multi-Grid methods

Closed Coal Mine in Westfalen, Germany²⁾



- Dimension: 3300m x 2600m x 600m
- 1 Shaft
- Approx. 27 km of roads in 3 layers
- 31 Dams (green)
- 5 Coal Seams (red) modeled as interior 2-dimensional faces
- Approx. 140000 Tetrahedra



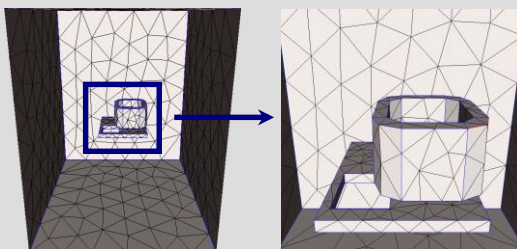
Coupled 2D/3D Net³⁾

Applications

Disciplines where ART currently is used include the following:

- Computational Fluid Dynamics (CFD)
- Structural Analysis
- Electromagnetic Simulation
- Reservoir Simulation

Part of a High-Voltage Power Switch



(coarse grid)

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1) Almost Regular Triangulations 2) provided by Deutsche Montan Technologie GmbH

3) provided by IWS, University of Stuttgart