Problem info

Problem type: Steady-State Heat Transfer
Geometry model class: Plane-Parallel
Problem database file names:

- Problem: *steam_pipe.pbm*
- Geometry: *Steam_pipe.mod*
- Material Data: *Steam_pipe.dht*
- Material Data 2 (library): *none*
- Electric circuit: *none*

Results taken from other problems:

- *none*

Geometry model

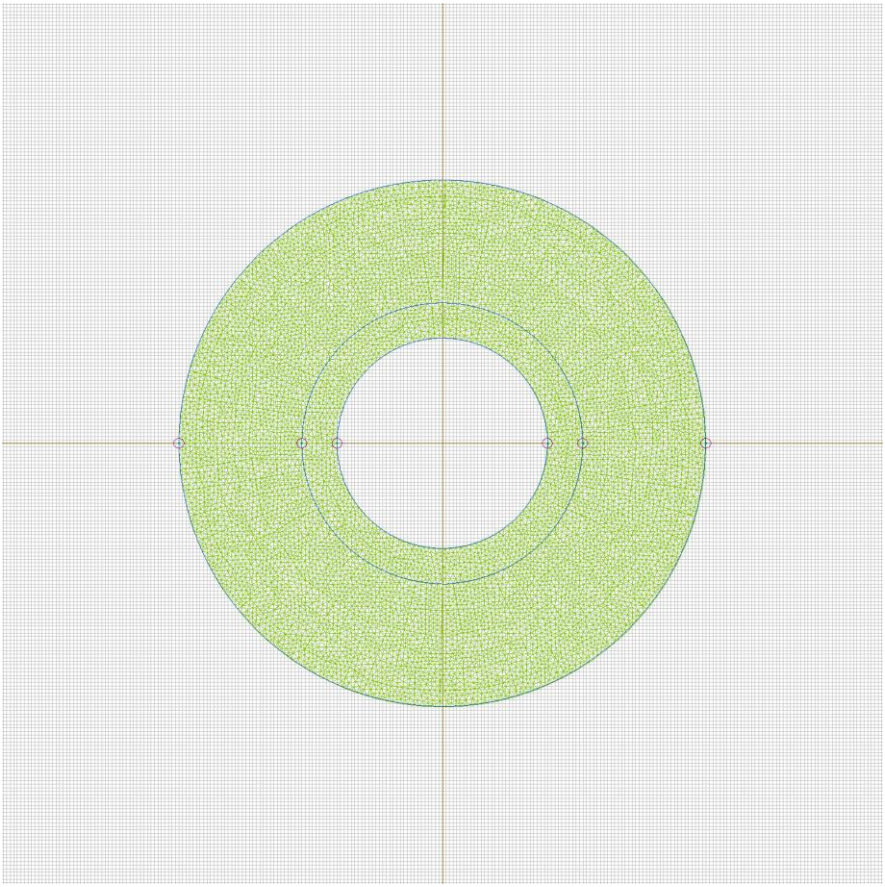


Table 1. Geometry model statistics

	With Label	Total
Blocks	2	3
Edges	3	6
Vertices	1	6

Number of nodes: 8800.

Labelled objects

There are following labelled objects in the geometry model (Material Data file could contain more labels, but only those labels that assigned to geometric objects are listed)

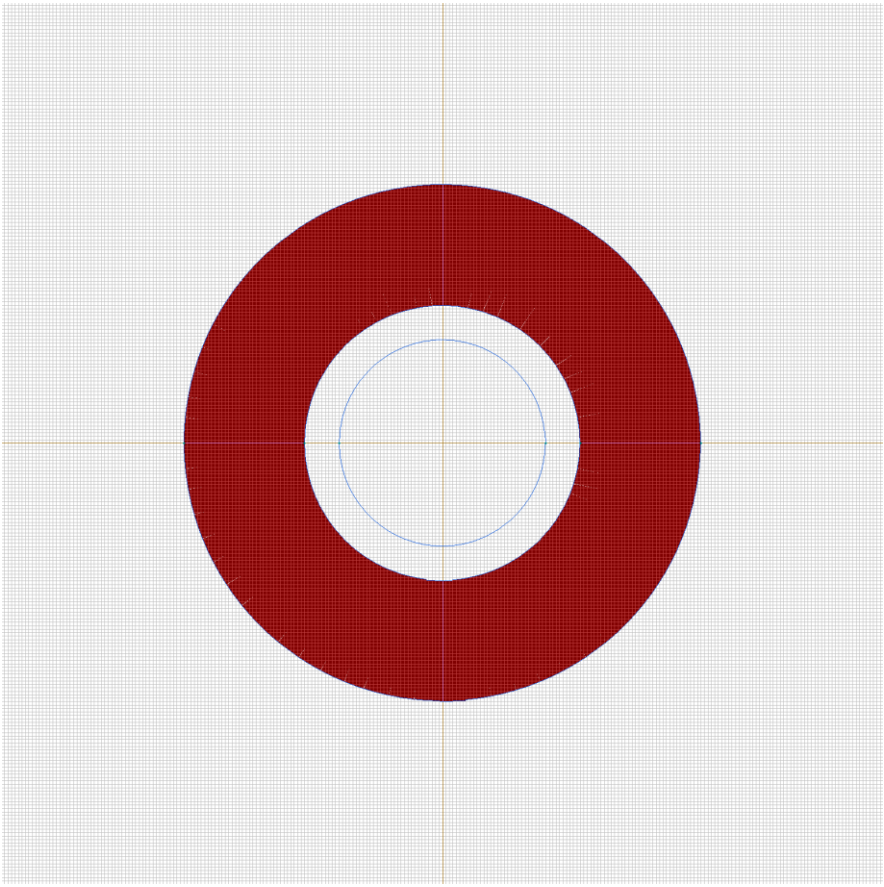
Blocks:	Edges:	Vertices:
• asbestos • steel •	• ArcX • outside • inside •	• vertexX •

Detailed information about each label is listed below.

Labelled objects: block "asbestos"

There are (1) objects with this label

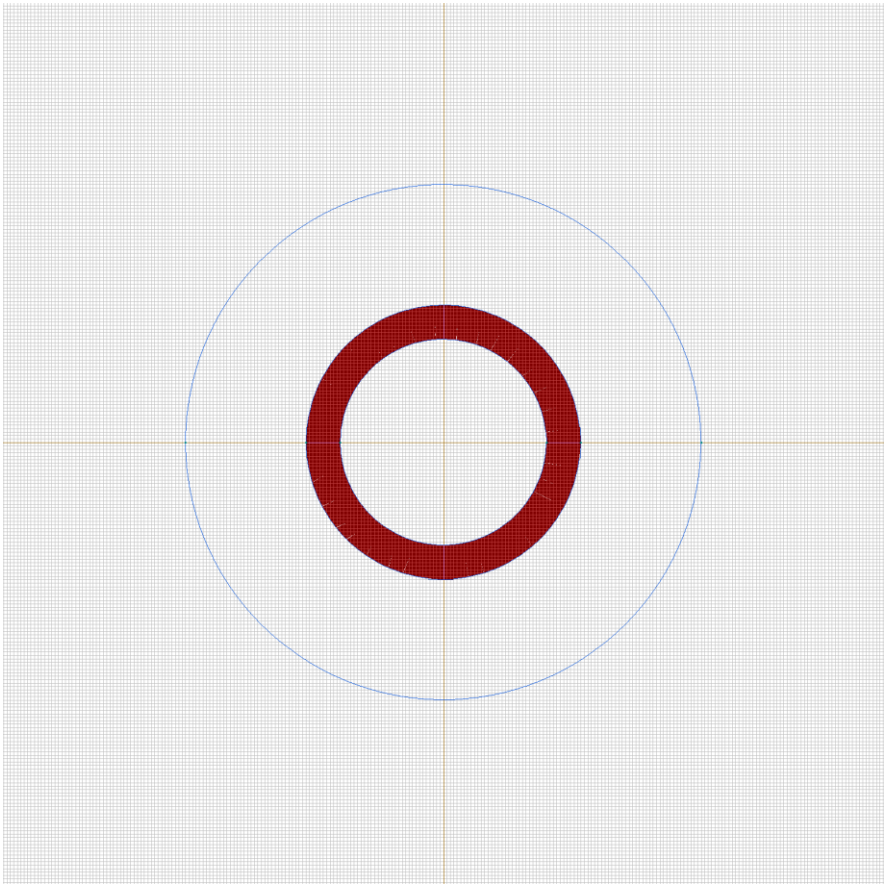
Thermal conductivity: lambda_x=0.8 [W/(K*m)], lambda_y=0.8 [W/(K*m)]



Labelled objects: block "steel"

There are (1) objects with this label

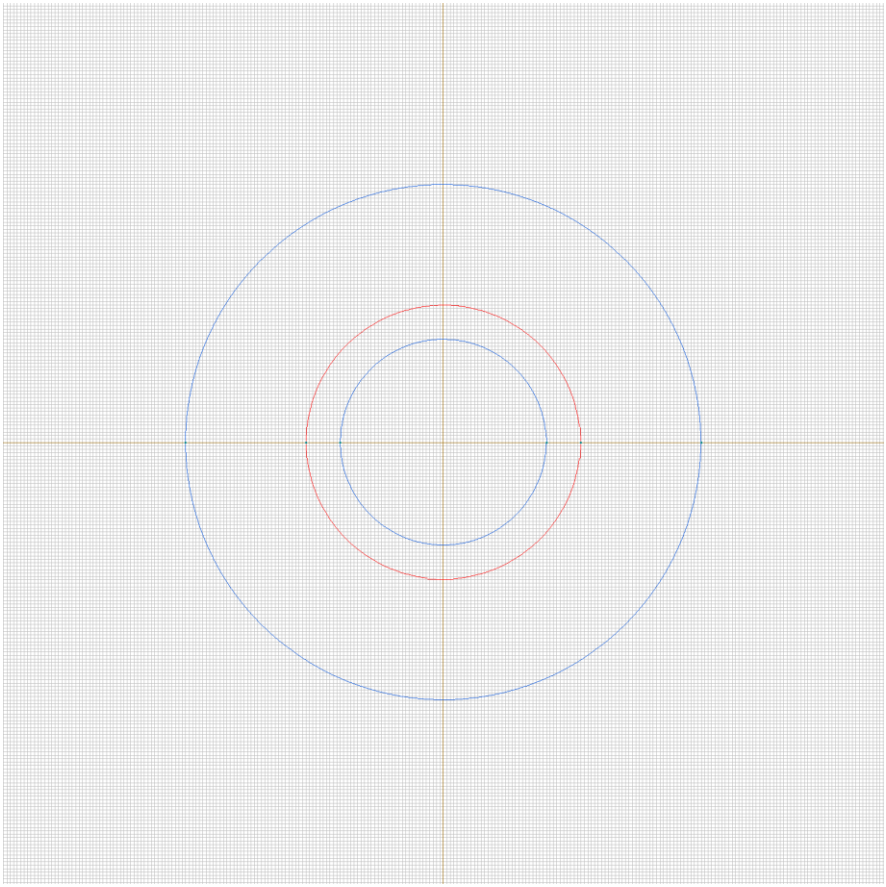
Thermal conductivity: lambda_x=42 [W/(K*m)], lambda_y=42 [W/(K*m)]



Labelled objects: edge "ArcX"

There are (2) objects with this label

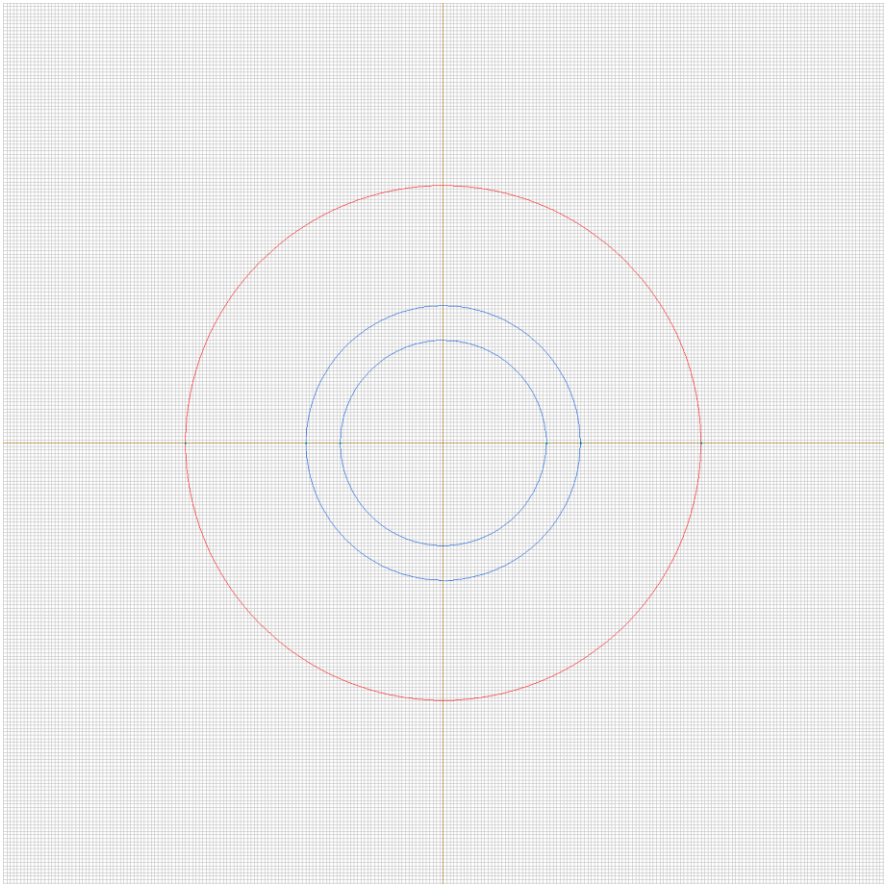
No material data (boundary conditions) are specified



Labelled objects: edge "outside"

There are (2) objects with this label

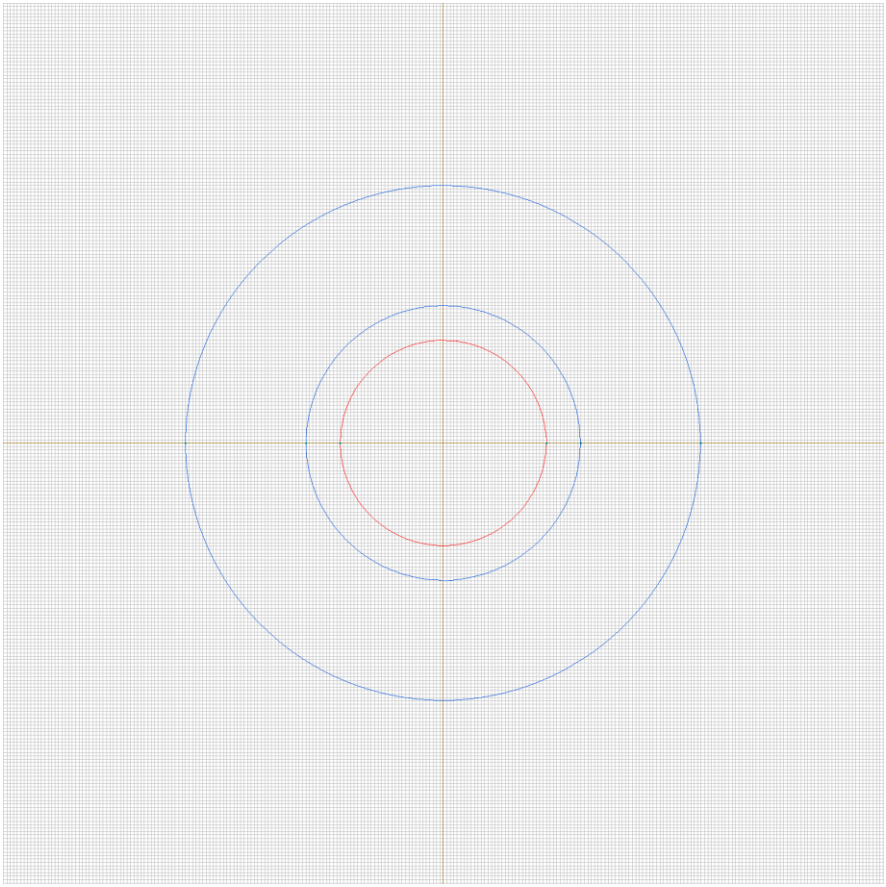
Convection: alpha=30 [W/(K*m2)], temperature T0=19.85 [K]



Labelled objects: edge "inside"

There are (2) objects with this label

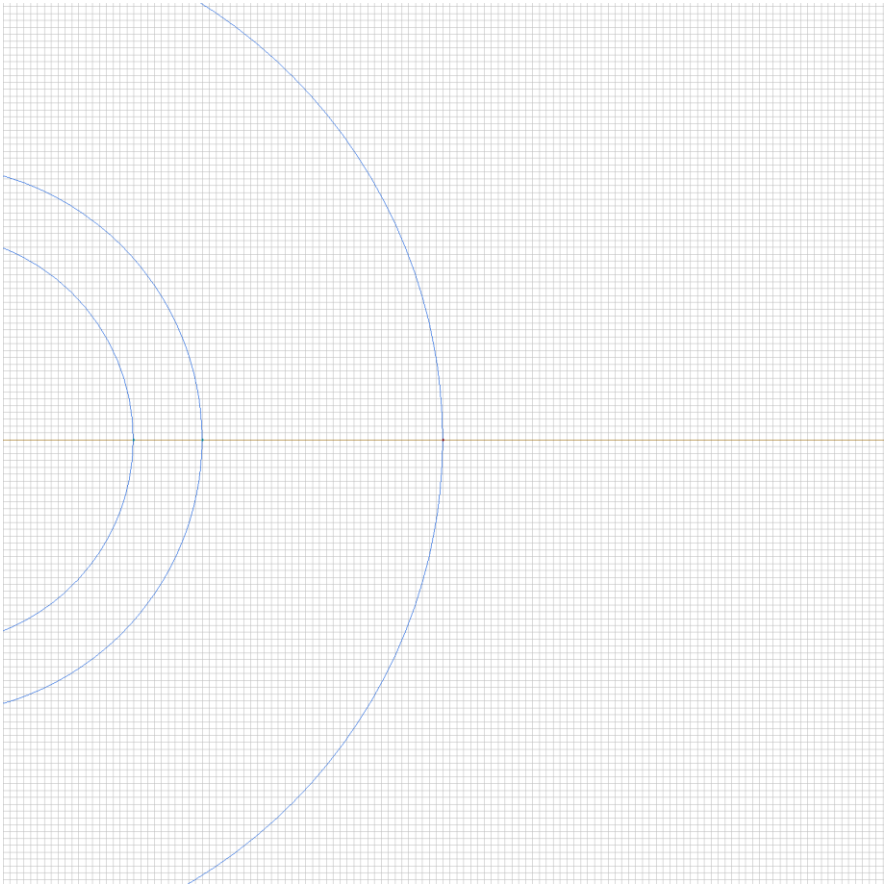
Convection: alpha=100 [W/(K*m2)], temperature T0=149.85 [K]



Labelled objects: vertex "vertexX"

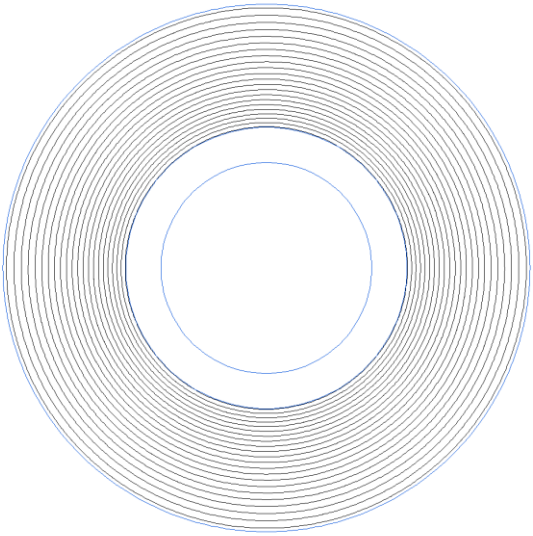
There are (1) objects with this label

No material data (boundary conditions) are specified



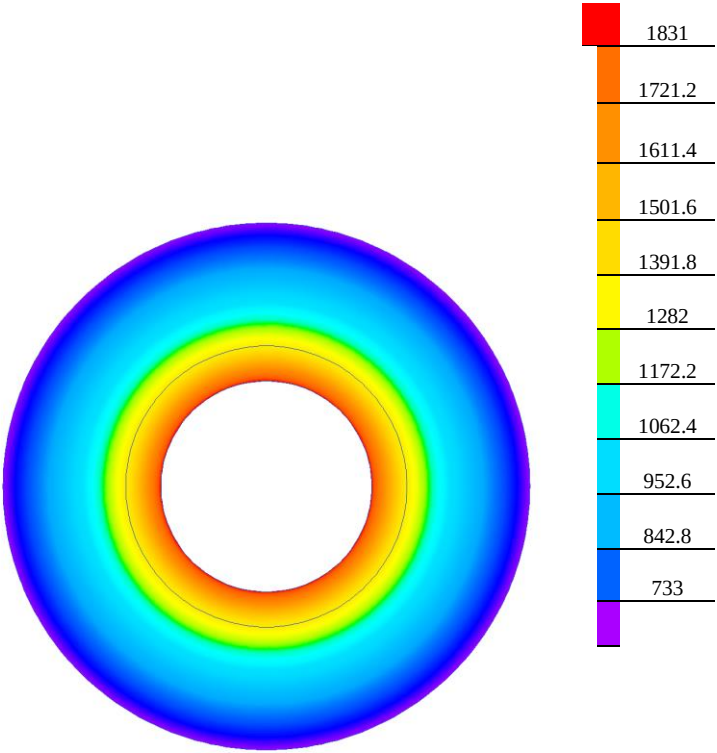
Results

Field lines



Results

Color map of Heat flux |F| [W/m2]



Nonlinear dependencies

No non-linear dependencies are used in this problem data