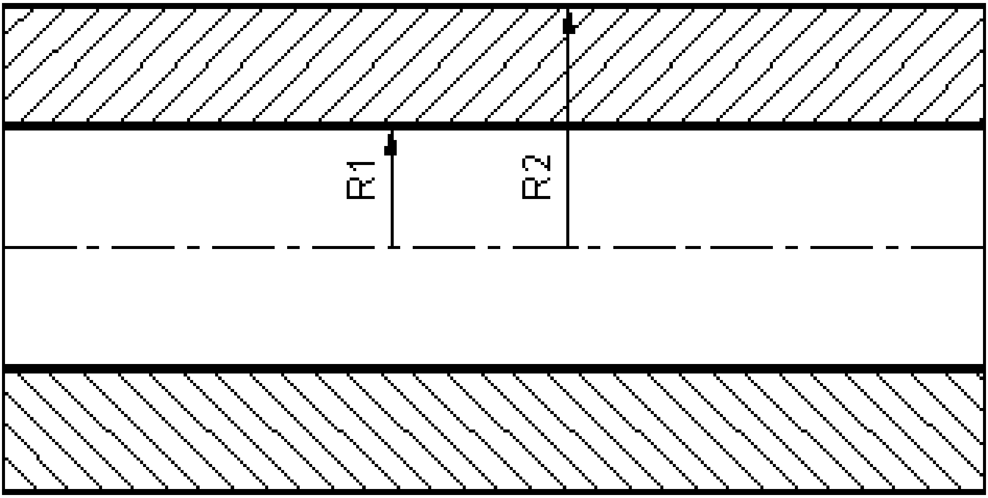
QuickField simulation report

Cylinder with temperature dependent conductivity

Determination of the temperature distribution in the cylinder



This automatically generated document consists of several sections, which specify the problem setup and finite element analysis simulation results. Navigation links in the top of each page lead to corresponding sections of this report.

Problem description and QuickField simulation files:
https://quickfield.com/advanced/heat2.htm

Problem info

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

- Problem: *Heat2.pbm*
- Geometry: *Heat2.mod*
- Material Data: *Heat2.dht*
- Material Data 2 (library): *none*
- Electric circuit: *none*

Results taken from other problems:

- *none*

Geometry model

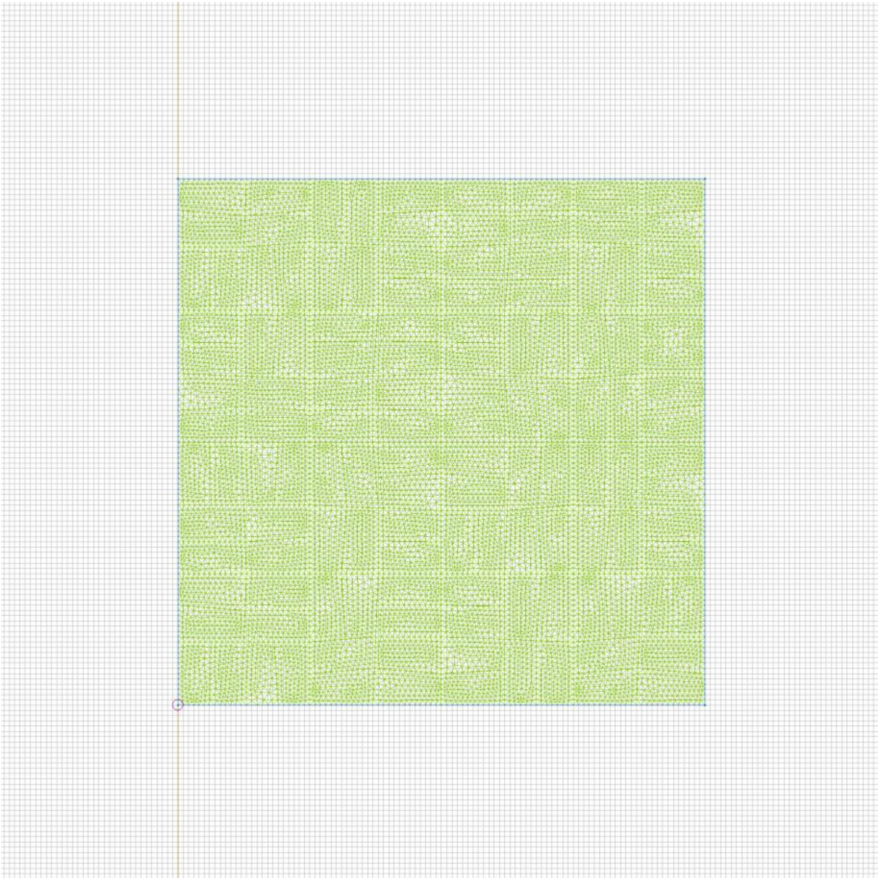


Table 1. Geometry model statistics

	With Label	Total
Blocks	1	1
Edges	2	4
Vertices	0	4

Number of nodes: 12797.

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)

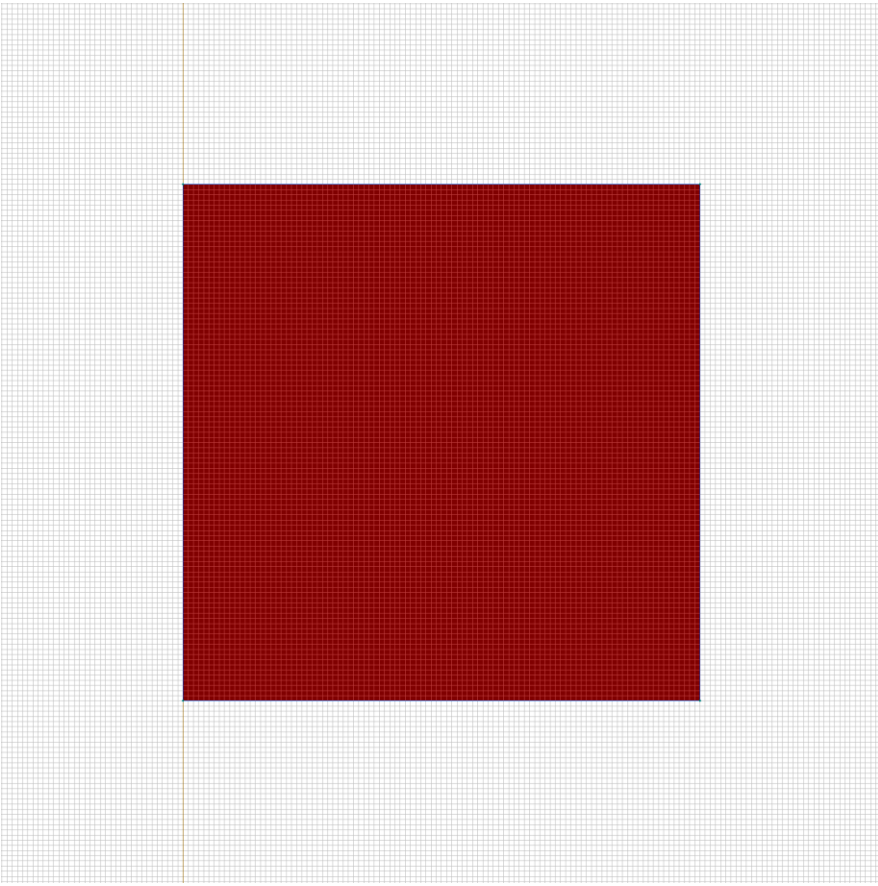
Blocks:	Edges:	Vertices:
• cond •	• Ti • To •	

Detailed information about each label is listed below.

Labelled objects: block "cond"

There are (1) objects with this label

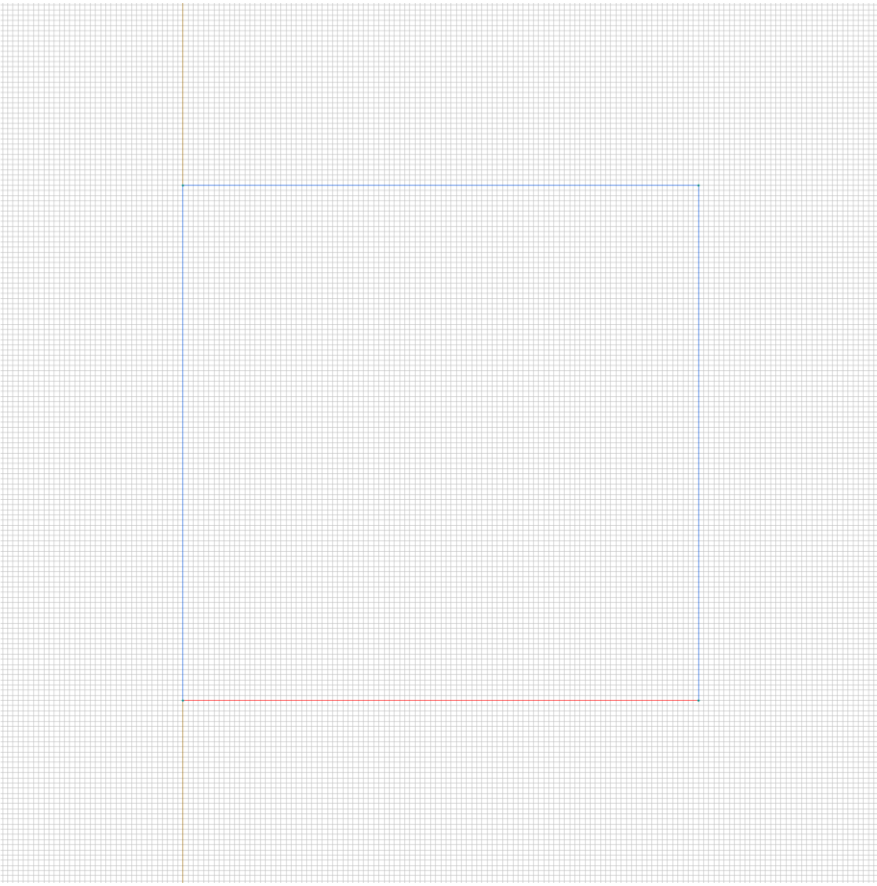
Thermal conductivity: lambda=nonlinear (see Table 2 in the "Nonlinear dependencies" section)



Labelled objects: edge "Ti"

There are (1) objects with this label

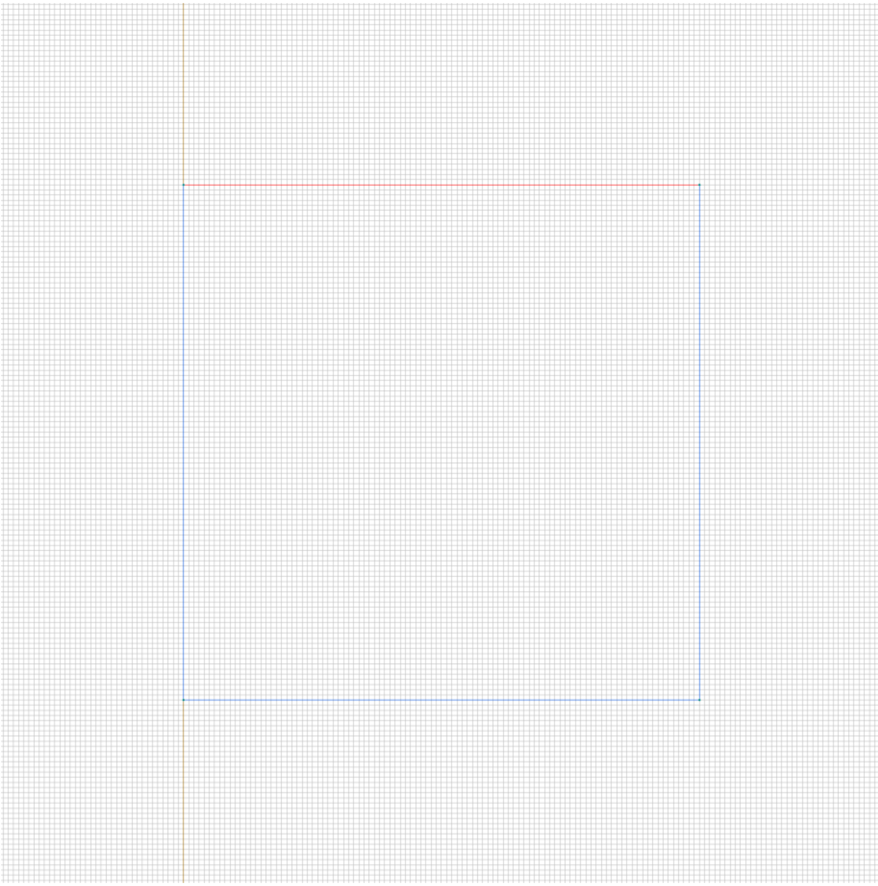
Temperature: T=-173.15 [K]



Labelled objects: edge "To"

There are (1) objects with this label

Temperature: T=-273.15 [K]

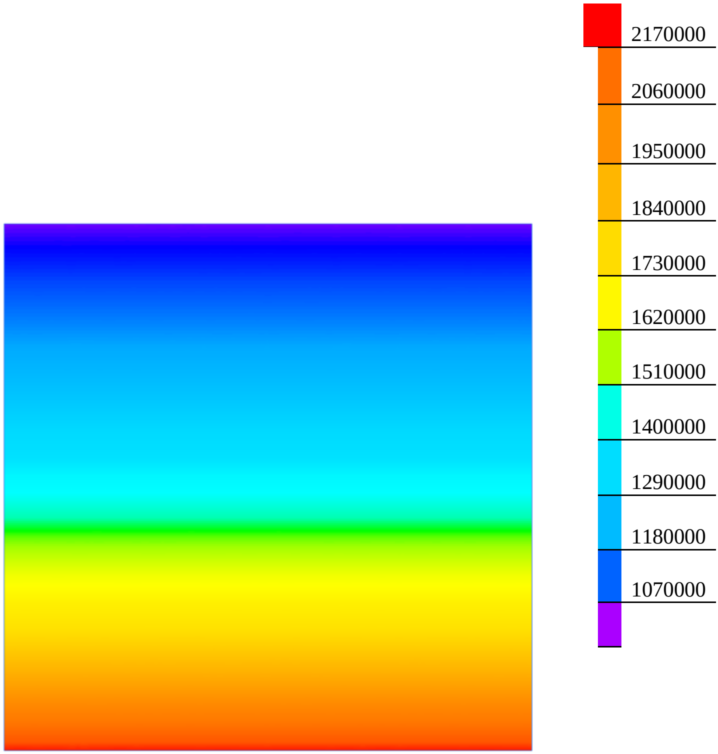


Results

Field lines

Results

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



Nonlinear dependencies

Table 2. Thermal conductivity

T [K]	lambda [W/K*m]
0	50
80	90