

Problem info

Problem type: Steady-State Heat Transfer

Geometry model class: Plane-Parallel

Problem database file names:

- Problem: *iso_10211_case_2.pbm*
- Geometry: *Iso_10211_case_2.mod*
- Material Data: *Iso_10211_case_2.dht*
- Material Data 2 (library): *none*
- Electric circuit: *none*

Results taken from other problems:

- *none*

Geometry model

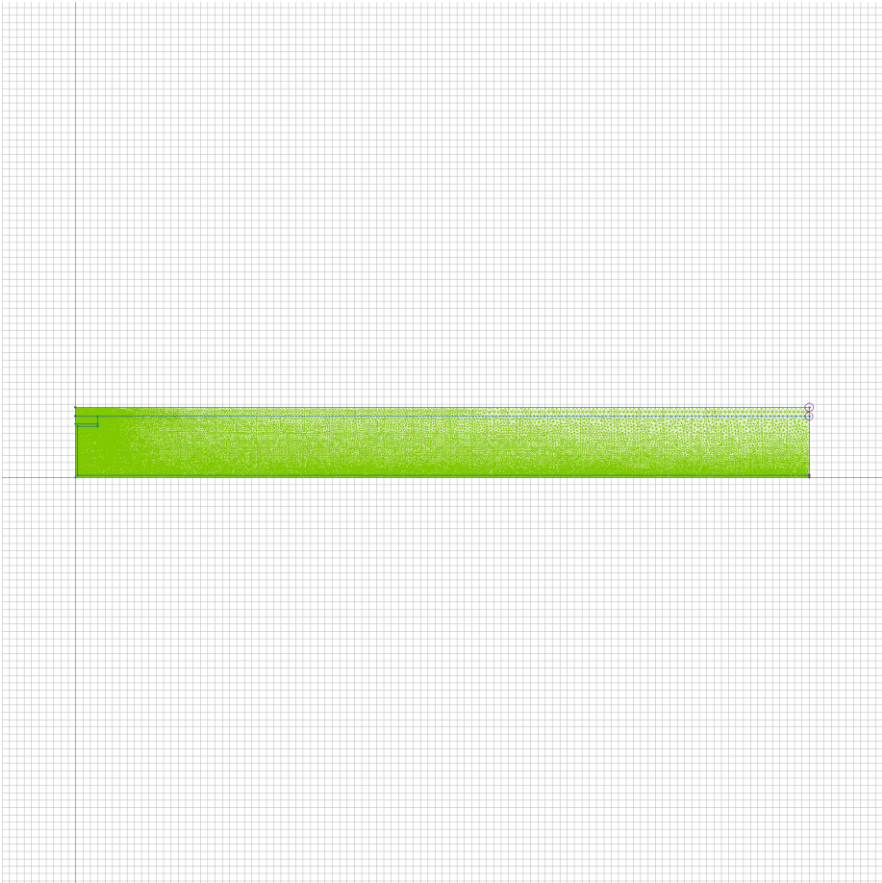


Table 1. Geometry model statistics

	With Label	Total
Blocks	4	4
Edges	3	16
Vertices	0	13

Number of nodes: 41234.

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:

- [slab](#)
- [insulation](#)
- [air](#)
- [metal](#)
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Edges:

- [bottom, +20](#)
- [symmetry](#)
- [top, 0](#)
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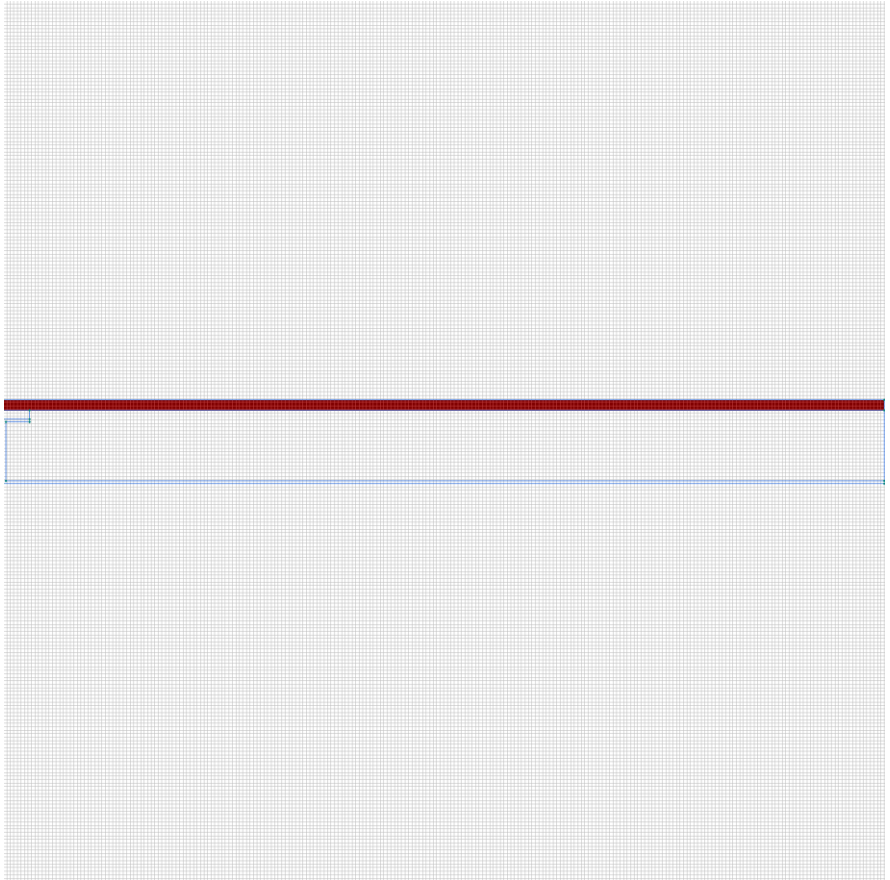
Vertices:

Detailed information about each label is listed below.

Labelled objects: block "slab"

There are (1) objects with this label

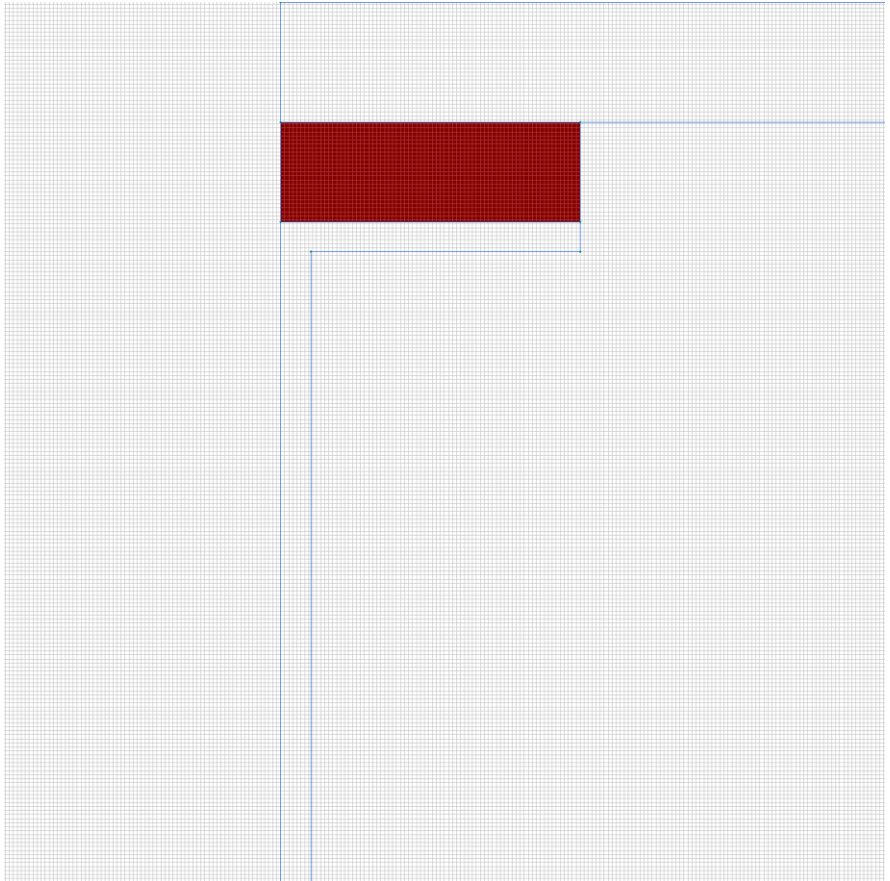
Thermal conductivity: $\lambda_x=1.15$ [W/(K*m)],
 $\lambda_y=1.15$ [W/(K*m)]



Labelled objects: block "insulation"

There are (1) objects with this label

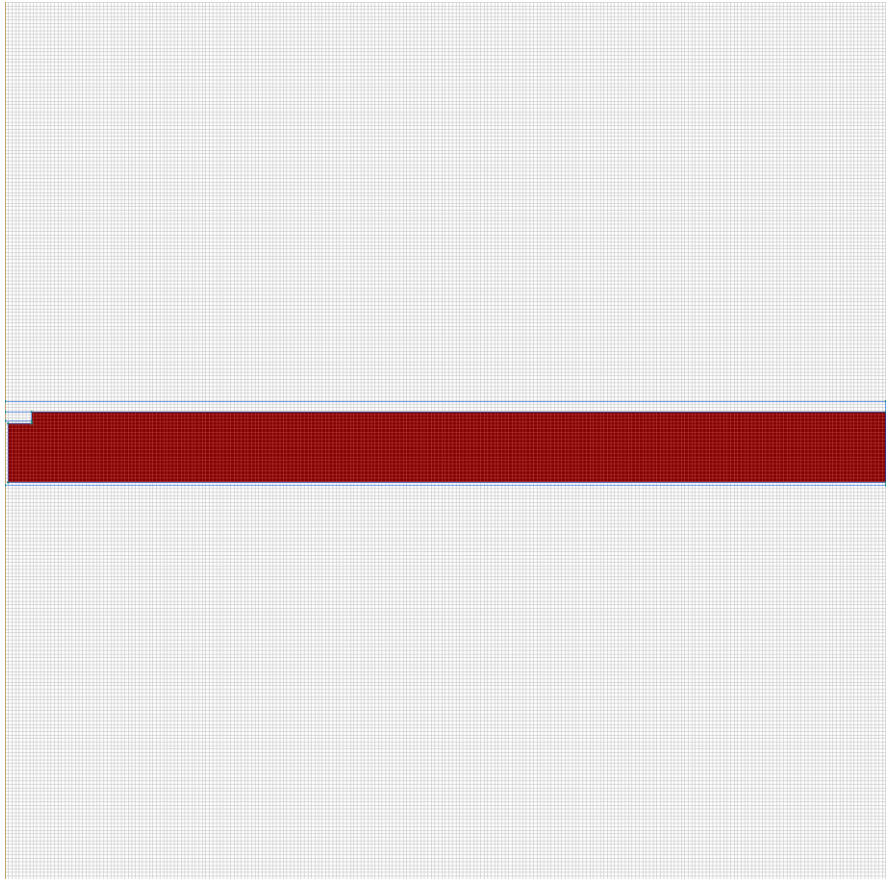
Thermal conductivity: $\lambda_x=0.12$ [W/(K*m)],
 $\lambda_y=0.12$ [W/(K*m)]



Labelled objects: block "air"

There are (1) objects with this label

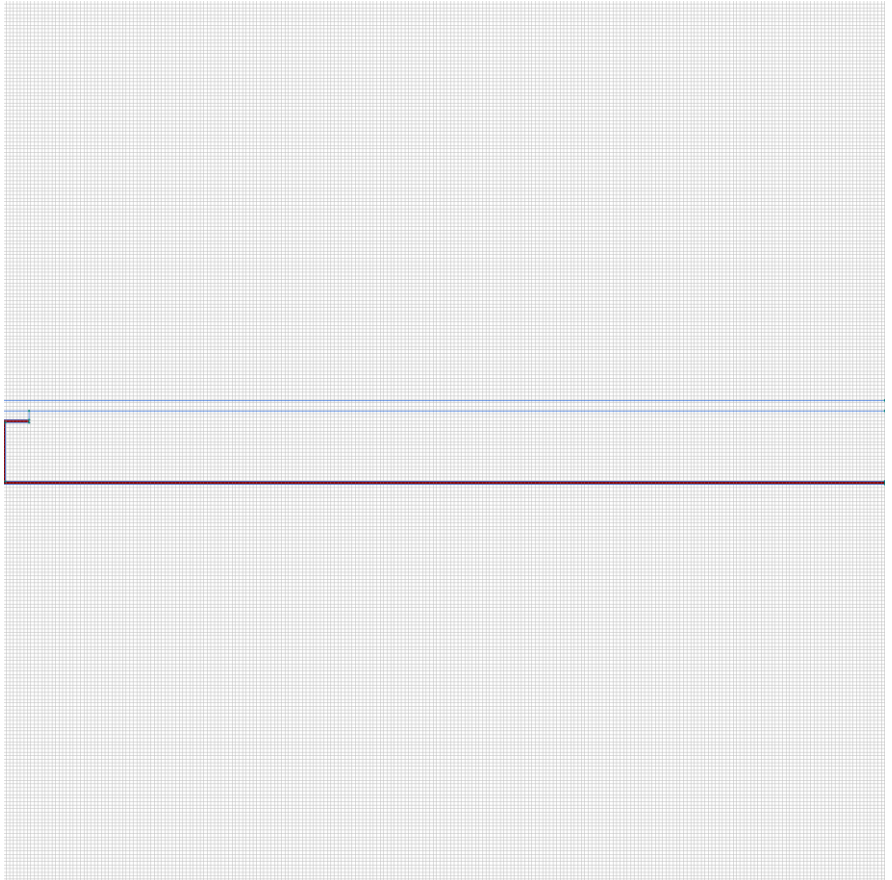
Thermal conductivity: $\lambda_x=0.029$ [W/(K*m)],
 $\lambda_y=0.029$ [W/(K*m)]



Labelled objects: block "metal"

There are (1) objects with this label

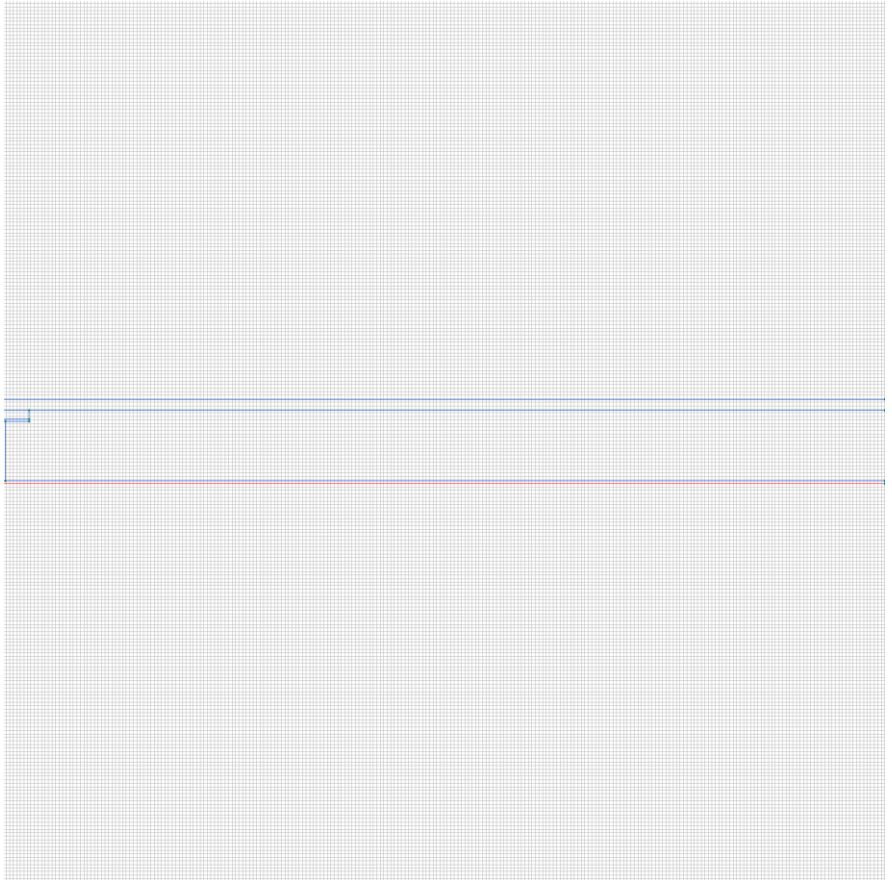
Thermal conductivity: $\lambda_x=230$ [W/(K*m)],
 $\lambda_y=230$ [W/(K*m)]



Labelled objects: edge "bottom, +20"

There are (1) objects with this label

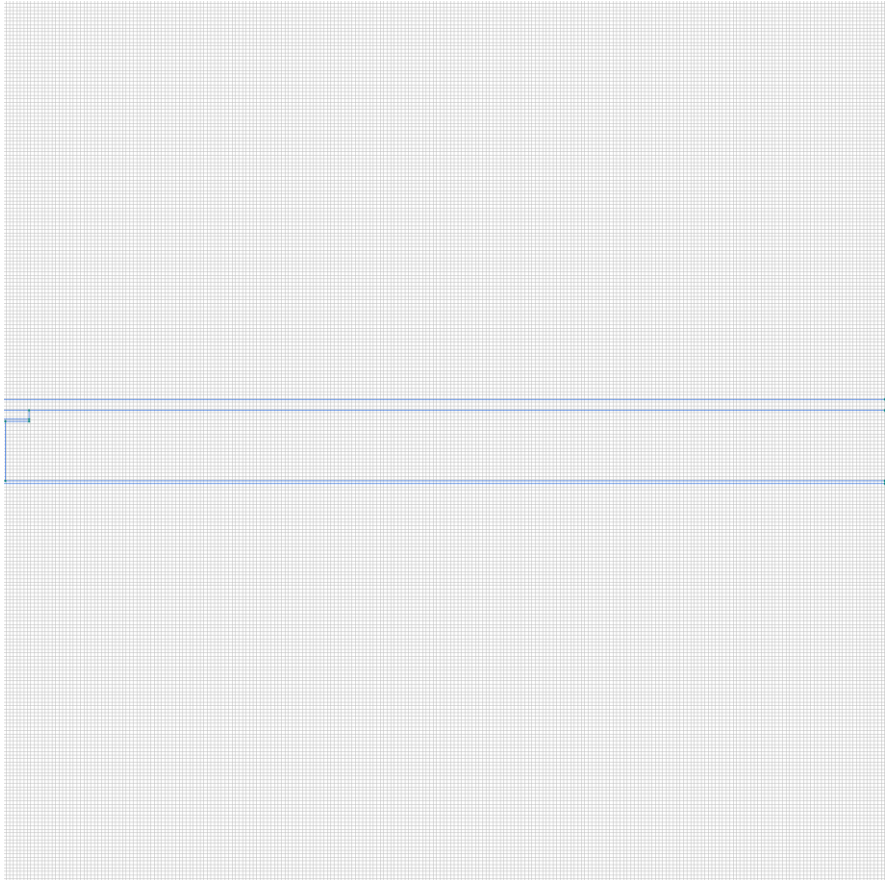
Convection: $\alpha=1/0.11$ [W/(K*m²)], temperature T0=-253.15 [K]



Labelled objects: edge "symmetry"

There are (3) objects with this label

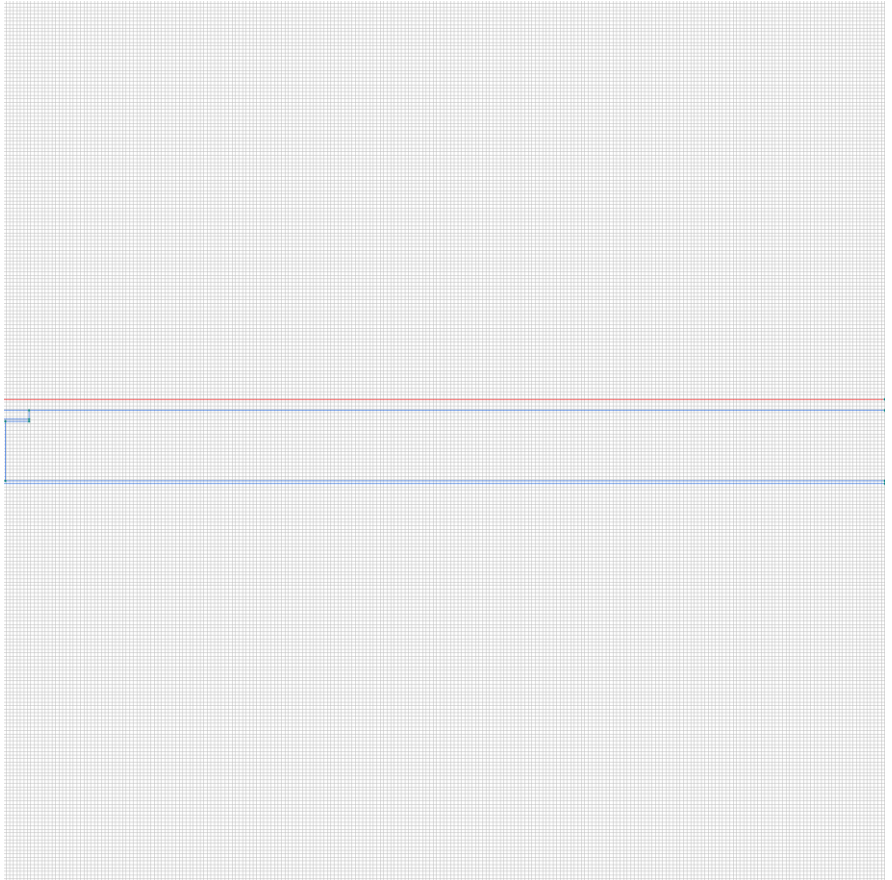
Heat flux: $F=0$ [W/m²]



Labelled objects: edge "top, 0"

There are (1) objects with this label

Convection: $\alpha=1/0.06$ [W/(K*m2)], temperature $T_0=-273.15$ [K]



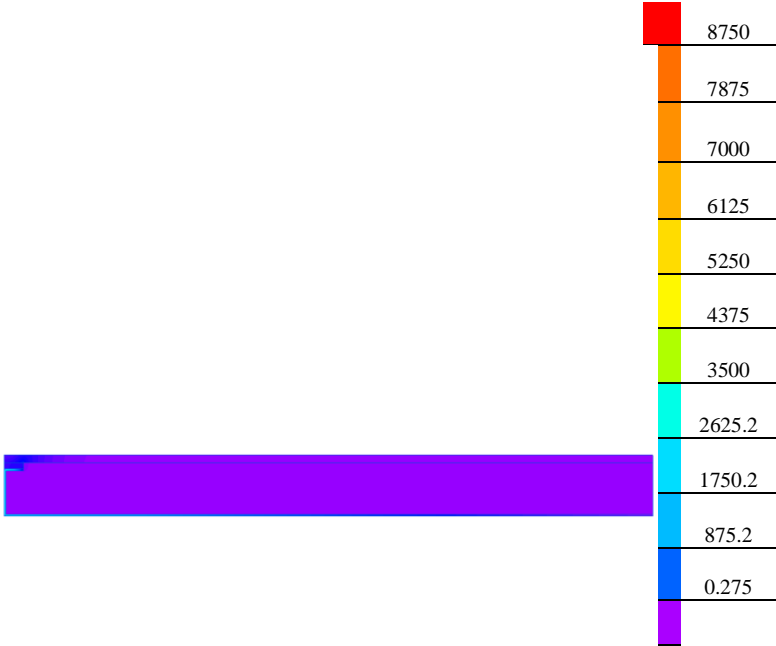
Results

Field lines



Results

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



Nonlinear dependencies

No non-linear dependencies are used in this problem data