Plotting Irwin Curves

Description

The program plots different types of curves for n-type semiconductors:

1.2. Irving curves sigma (Nd) and rho (Nd).

3. Conductivity versus temperature T.

4. Mobility of electrons from temperature T.

5. The concentration of free electrons from temperature T.

6. Concentration of free electrons from donor concentration.

How to use the program?

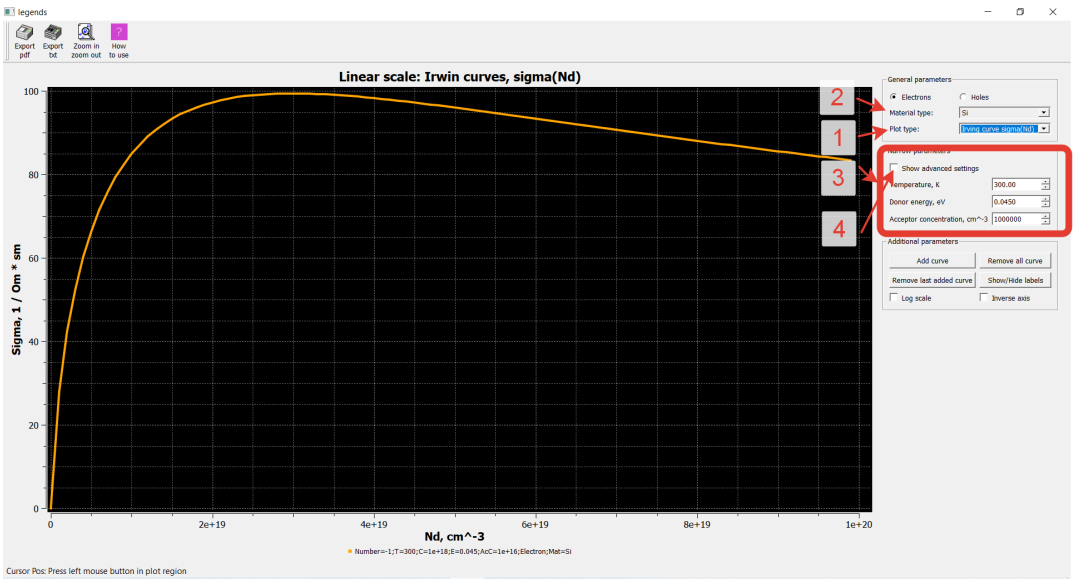
1. To select a specific curve, adjust the "Plot type".

2. Select "Material type" to select the semiconductor material. Available materials: Si, Ge, AsGa

3. Set the values for this type of curve in the "Narrow parameters" window. You can see in real time how the changes affect the curve.

4. You can set advanced settings such as the step used to calculate the points for the curve and the limits from and to the calculation of the values for the concentration or temperature, respectively.

5. You can use the arrows next to the field to change the values. The values then change adaptively, depending on the value in the field. Each value has a limit range, if you cannot change the value, try setting a lower value.



PLEASE NOTE that everything related to concentration is automatically multiplied by 1e10. The parameter values used when plotting the curve can be seen below the graph. You can hide them by clicking Show / Hide labels.

Parameter designations:

- Color - the color of the curve for which this information is provided;
- Number - the number of the curve, if the number is '-1' - this is information for the curve changing in real time;
- T is the temperature at which this curve was plotted in Kelvin
- C - value of donor concentration in cm ^ -3
- E is the donor energy in eV
- AcC - acceptor concentration in cm ^ -3
- Electron / Holes - refers only to the mobility (T) of electrons or holes.
- Mat - the type of material.

Additional functionality

1. Click add curve to fix the current curve on the graph for comparison with the curve plotted with other parameters.

2. You can zoom in / out a specific area on the graph. Pressing zoom in and selecting the rectangle - the area in which you need to examine in more detail. By clicking zoom out, you will return to the original version - the entire considered range on the chart.

3. You can export curves to PDF format (snapshot of a graph with captions) or to text format - to reproduce constructions, for example, in Excel. Before exporting, you must click add curve.

4. You can click and hold the mouse button for a point on the graph to get the value of this point, which will be below the graph.

5. You can invert the axes for a given curve by clicking "inverse axis". You can build a logarithmic scale for a given curve by clicking "Log scale".

6. To view brief information, click "How to use".