

```
Remove["Global`*"]

file = "iv3"
inputpath = "d:\\test\\";
outputpath = inputpath <> "Edited\\";
CreateDirectory[outputpath]
rescaleV = 100;
rescaleI = 10 000;
zeroposition = 0;
```

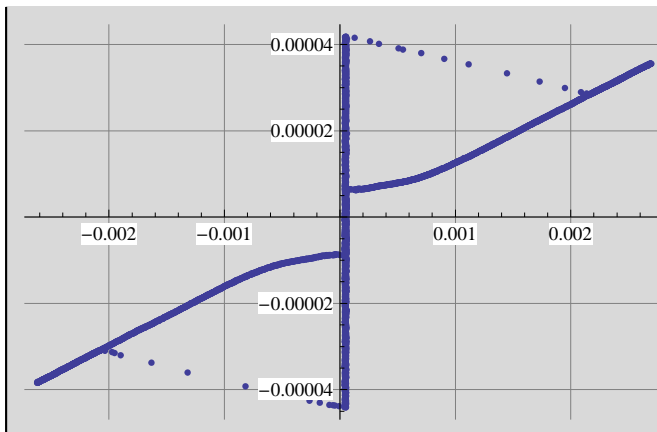
```
iv3
```

```
D:\test\Edited\
```

Import and plot

```
rawdata = Map[{N[#[[2]] / rescaleV], N[#[[4]] / rescaleI]} &,
  Import[inputpath <> ToString[file] <> ".txt", "Table"]];
Print["Length of raw data: ", Length[rawdata]];
ListPlot[{rawdata}, GridLines -> Automatic]
(* Manipulate[
  Show[ListPlot[{rawdata}, GridLines -> Automatic], PlotRange -> {{xmin, xmax}, {ymin, ymax}}],
  {xmax, 0, 0.01}, {xmin, -0.01, 0}, {ymax, 0, 0.001}, {ymin, -0.001, 0}] *)
```

Length of raw data: 5002



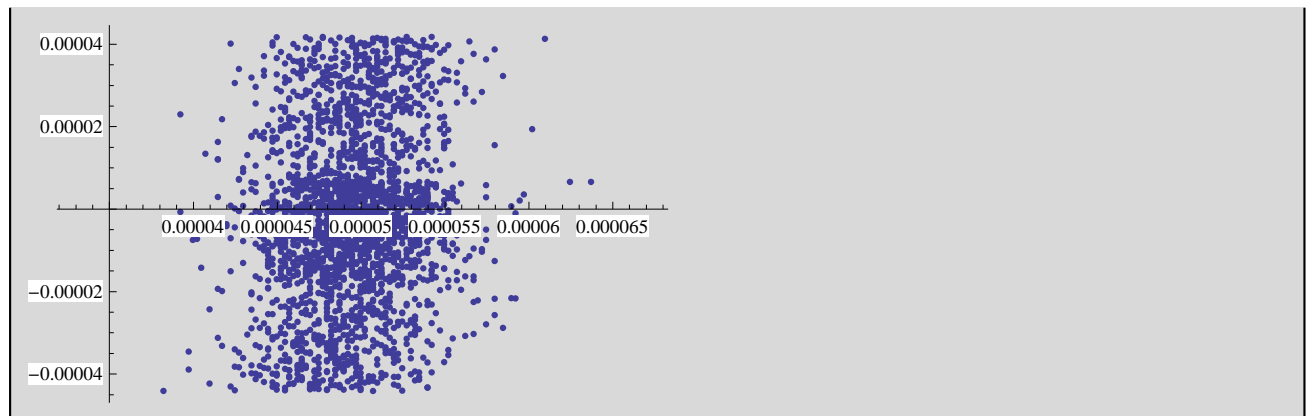
Select data for Y max / min finding

```

selectData = {};
leftX = -10 * 10-4; rightX = 10 * 10-4;
For [i = 1, i ≤ Length[rawdata], i++,
  If[rawdata[[i, 1]] ≥ leftX && rawdata[[i, 1]] ≤ rightX,
    AppendTo[selectData, rawdata[[i]]]];
Print["Length of selected data: ", Length[selectData]];
ListPlot[selectData[*, PlotRange → {{leftX, rightX}, {-0.000045, 0.000045}}*]]

```

Length of selected data: 3205



Find min / max and switching current

```

minY = Min[selectData[[All, 2]]];
maxY = Max[selectData[[All, 2]]];
Isw = (Abs[maxY] + Abs[minY]) / 2;
Print["Max=", maxY, "; Min=", minY, "; Isw(uA)=", Isw * 106];

```

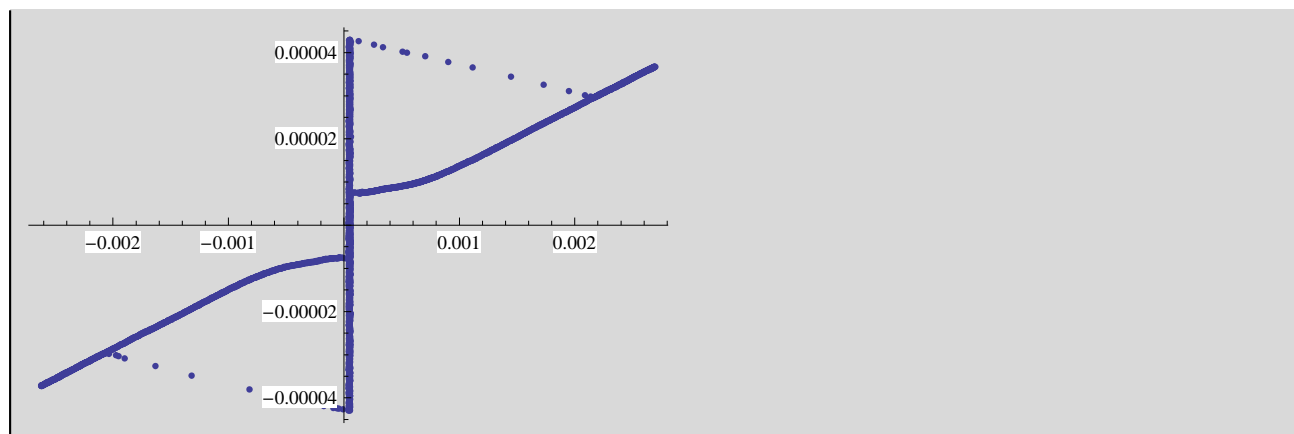
Max=0.0000418029; Min=-0.0000441184; Isw(uA)=42.9607

Shift along Y axis

```

middleY = (maxY+minY) / 2;
shiftY = zeroposition - middleY;
yshiftData = {};
For [i = 1, i ≤ Length[rawdata], i++, AppendTo[yshiftData, rawdata[[i]] + {0, shiftY}]];
ListPlot[yshiftData]
Print["Length of Y-shifted data: ", Length[yshiftData]];
Export[outputpath <> ToString[file] <> "_yshift.dat",
  Map[{N[#[[1]]], N[#[[2]]]} &, yshiftData]]

```



Length of Y-shifted data: 5002

```
d:\test\Edited\iv3_yshift.dat
```

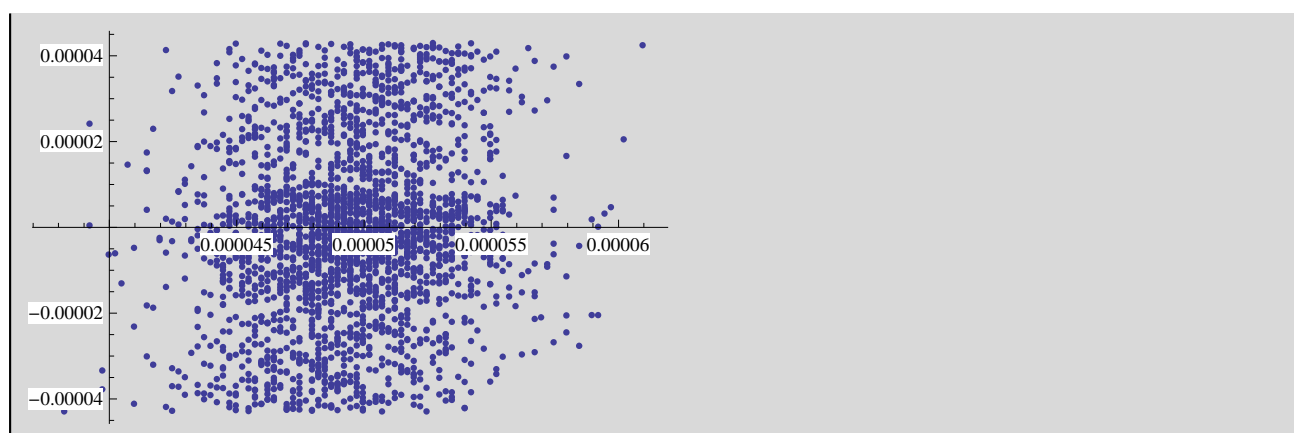
Check after Y – shifting : Select again data for Y max / min finding

```

selectyshiftData = {};
leftX = -1 * 10 ^ (-4); rightX = 1 * 10 ^ (-4);
For [i = 1, i ≤ Length[yshiftData], i++,
  If[yshiftData[[i, 1]] ≥ leftX && yshiftData[[i, 1]] ≤ rightX,
    AppendTo[selectyshiftData, yshiftData[[i]]]];
Print["Length of selected data: ", Length[selectyshiftData]];
ListPlot[selectyshiftData(*, PlotRange→{{leftX,rightX},{-0.000045,0.000045}}*)]

```

Length of selected data: 2520



```

minY1 = Min[selectyshiftData[[All, 2]]];
maxY1 = Max[selectyshiftData[[All, 2]]];
Isw = (Abs[maxY1] + Abs[minY1]) / 2;
Print["Max=", maxY1, "; Min=", minY1, "; Isw(uA)=", Isw * 10^6];

```

Max=0.0000429607; Min=-0.0000429607; Isw(uA)=42.9607

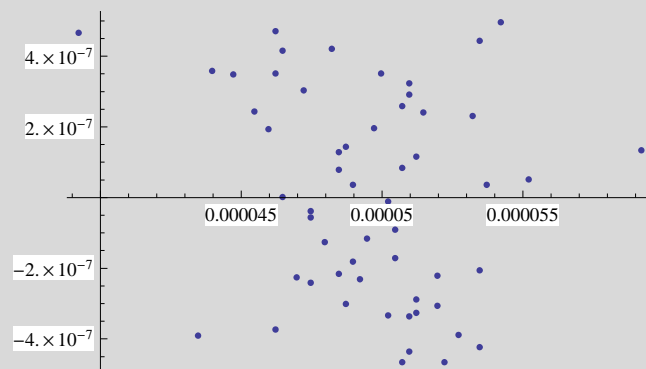
Select data for X max / min finding

```

selectData1 = {};
minY2 = -0.5 * 10^-6; maxY2 = 0.5 * 10^-6;
For [i = 1, i ≤ Length[yshiftData], i++,
  If[yshiftData[[i, 2]] ≥ minY2 && yshiftData[[i, 2]] ≤ maxY2,
    AppendTo[selectData1, yshiftData[[i]]]];
ListPlot[selectData1]

minX = Min[selectData1[[All, 1]]]; maxX = Max[selectData1[[All, 1]]];
Print["Max=", maxX, "; Min=", minX];

```



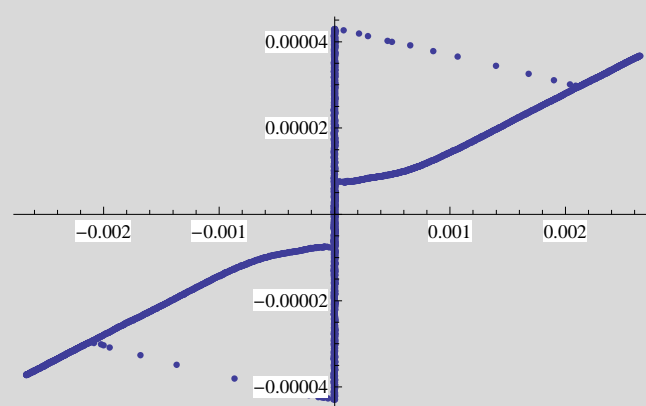
Max=0.0000592009; Min=0.0000392175

Shift along X axis

```

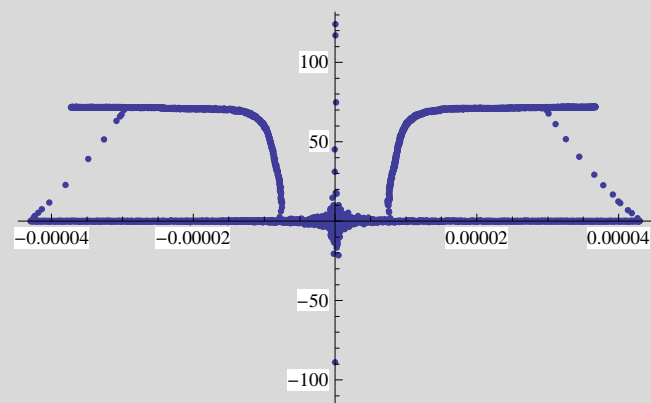
middleX = (maxX + minX) / 2;
shiftX = 0 - middleX;
xyshiftData = {};
For [i = 1, i ≤ Length[yshiftData],
  i++, AppendTo[xyshiftData, yshiftData[[i]] + {shiftX, 0}]];
ListPlot[xyshiftData]

```



Convert IV to RI (resistance – current) presentation

```
riData = Map[{N#[[2]], N#[[1]] / #[[2]]} &, xyshiftData];
ListPlot[riData]
```



```
Export[outputpath <> ToString[file] <> "_recalc.dat",
  Map[{N#[[1]], N#[[2]]} &, rawdata]];
Export[outputpath <> ToString[file] <> "_shift.dat",
  Map[{N#[[1]], N#[[2]]} &, xyshiftData]];
Export[outputpath <> ToString[file] <> "_ri.dat", Map[{N#[[1]], N#[[2]]} &, riData]];
Export[outputpath <> ToString[file] <> "_Isw.dat", Isw];
```