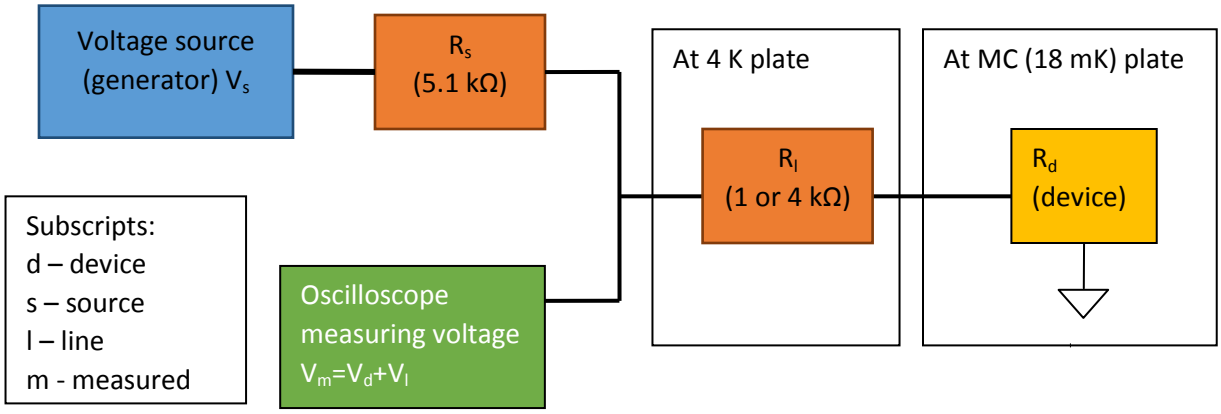
WSi Critical current measurements

Width (SEM measured) [µm]	**Line resistance (R_l) [kΩ]**	**Saved file** in overlord: Y:\Measurements\2019.dir\11_02_19 cooldown\KITWA 001 at MC\Second measurement	**Index**
1.01	1	Scope_4	1
1.45	4	Scope_3	2
2.18	1	Scope_2	3
1.97	4	Scope_0	4
1.98	4	Scope_1	5

Measurement setup:



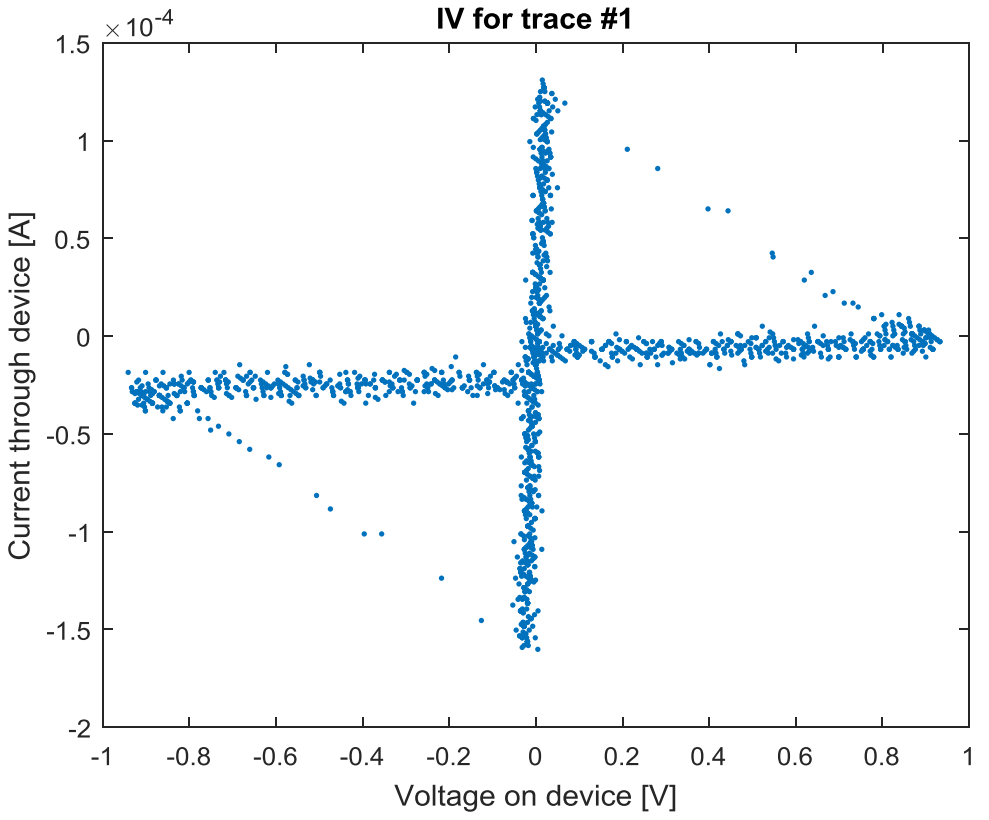
From the above diagram we see that

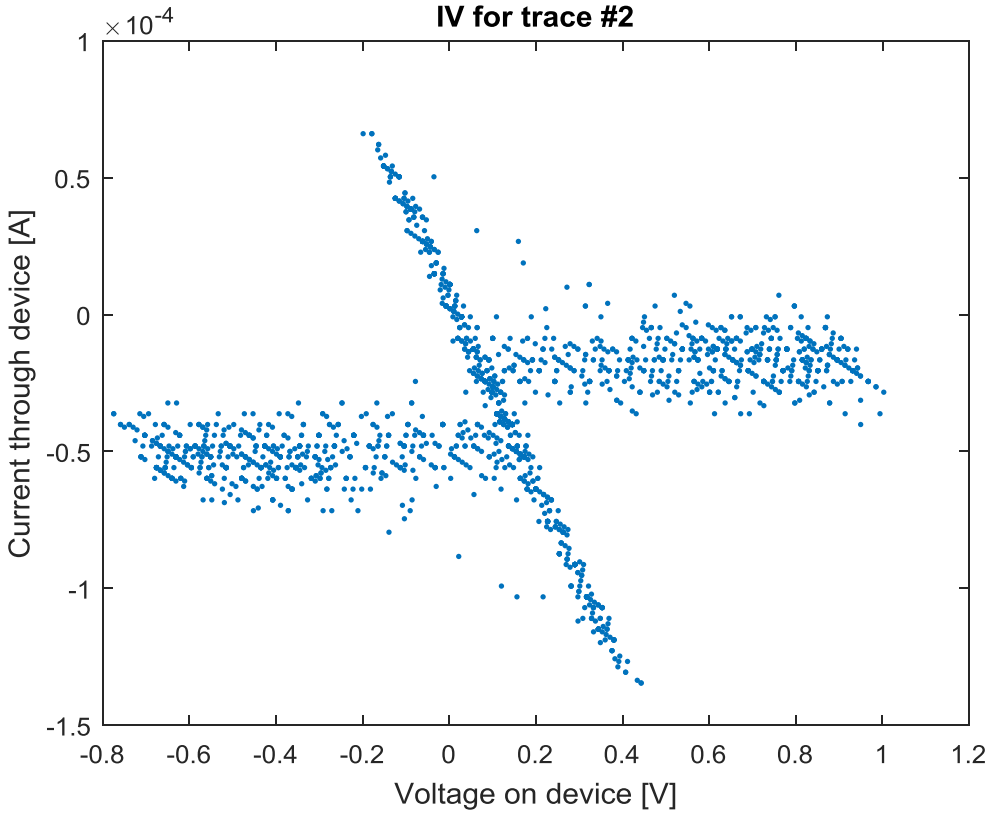
$$V_m = I_d(R_l + R_d)$$

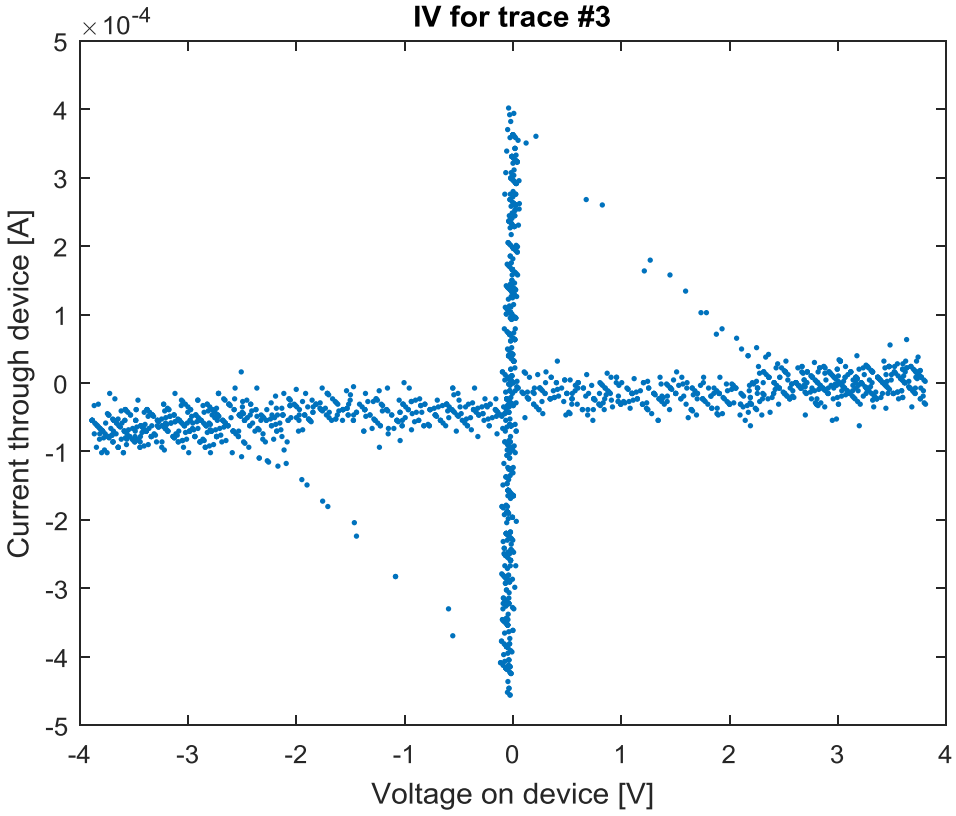
$$V_s = I_d(R_s + R_l + R_d)$$

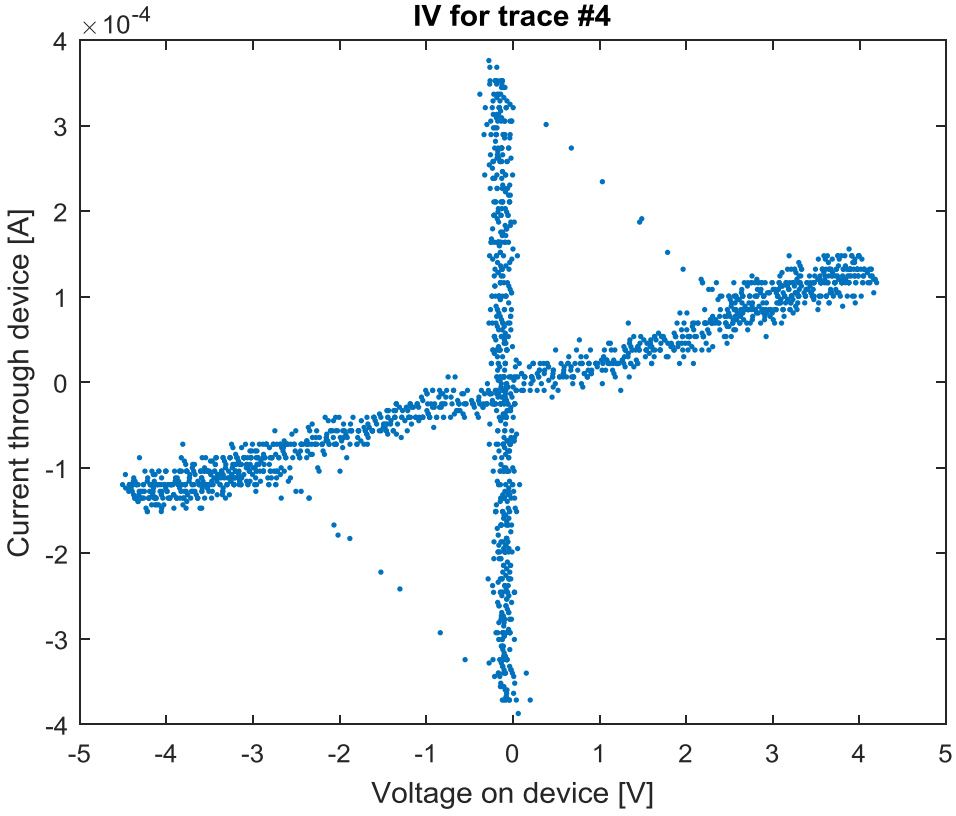
It follows that $I_d = \frac{(V_s - V_m)}{R_s}$ and $V_d = V_m - I_d R_l = V_m - (V_s - V_m)\frac{R_l}{R_s}$

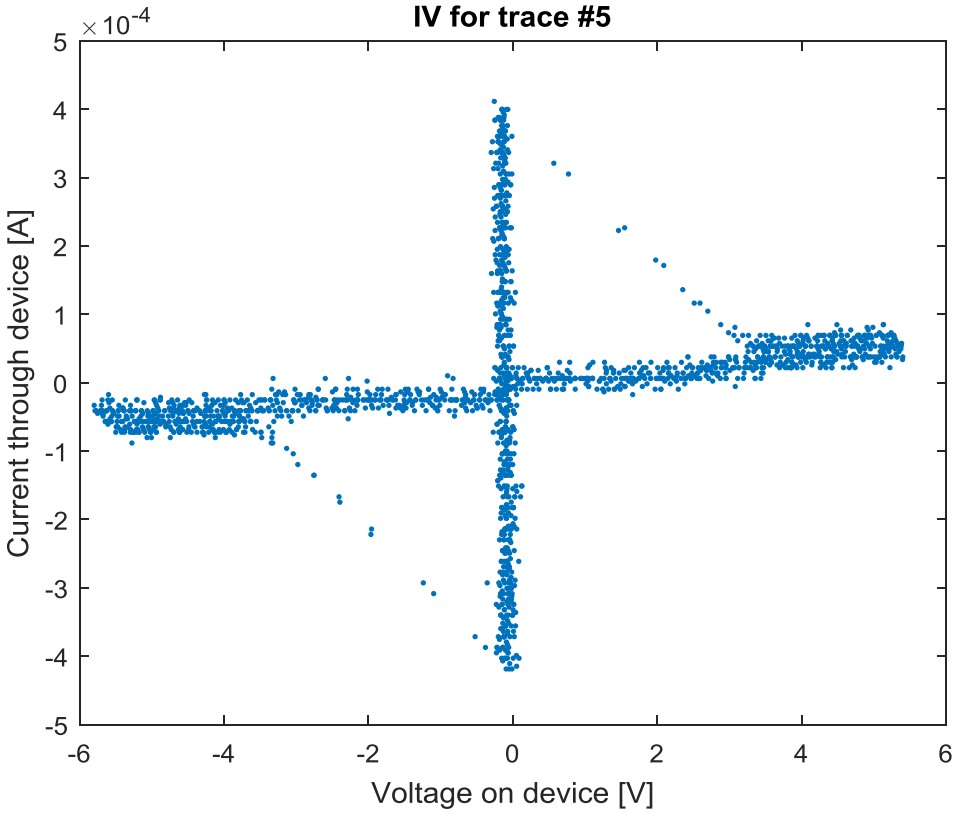
We plot V_d and I_d for the five traces.


IV for trace #1
×10^-4
1.5
1
0.5
0
-0.5
-1
-1.5
-2
Current through device [A]
-1
-0.8
-0.6
-0.4
-0.2
0
0.2
0.4
0.6
0.8
1
Voltage on device [V]


IV for trace #2
×10^-4
1
0.5
0
-0.5
-1
-1.5
Current through device [A]
-0.8
-0.6
-0.4
-0.2
0
0.2
0.4
0.6
0.8
1
1.2
Voltage on device [V]


IV for trace #3
×10^-4
5
4
3
2
1
0
-1
-2
-3
-4
-5
Current through device [A]
-4
-3
-2
-1
0
1
2
3
4
Voltage on device [V]


IV for trace #4
×10^-4
4
3
2
1
0
-1
-2
-3
-4
Current through device [A]
-5
-4
-3
-2
-1
0
1
2
3
4
5
Voltage on device [V]


IV for trace #5
×10^-4
5
4
3
2
1
0
-1
-2
-3
-4
-5
Current through device [A]
-6
-4
-2
0
2
4
6
Voltage on device [V]