

# EXFLU1 - PIN Studies

CV campaign before and after irradiation

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# EXFLU1 PiNs for Doping Evolution Studies

Wafer #	Thickness	Bulk
1	45	very low
5	30	1.5E13/cm <sup>3</sup>
16	20	1.5E14/cm <sup>3</sup>
18	15	

Study the  
bulk doping evolution  
with irradiation

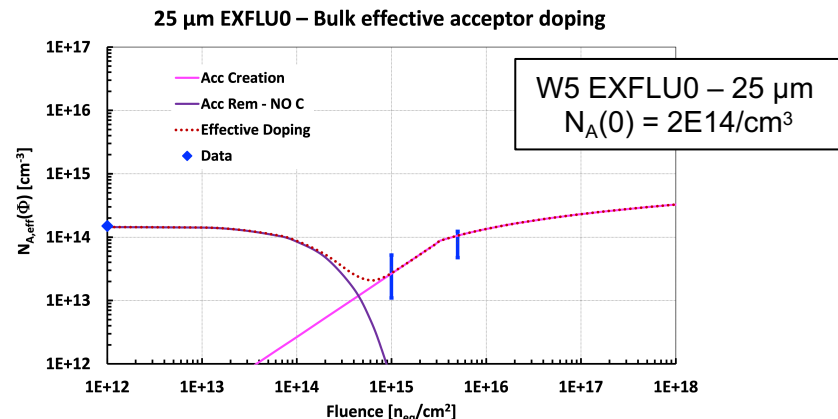
Sensors irradiated with neutrons  
at JSI, Ljubljana

$$\Phi = 8, 15, 25\text{E}14 \text{ n}_{\text{eq}}/\text{cm}^2$$

Measurements performed at  
 $T = +20^\circ\text{C}$  and  $f = 1\text{kHz}$

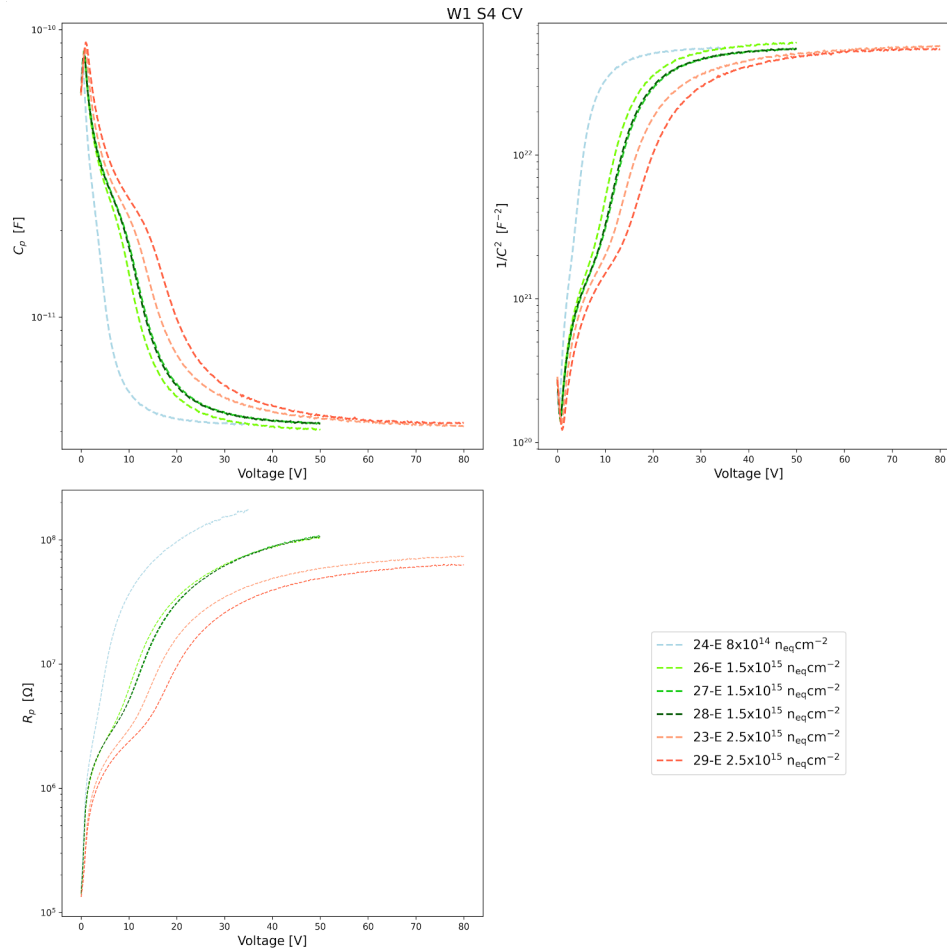
Expected evolution of effective  
acceptors for low resistivity bulks

$$\text{From } N_{A,\text{eff}}(\Phi) = N_A(0) \cdot e^{-c\Phi} + g_c\Phi$$



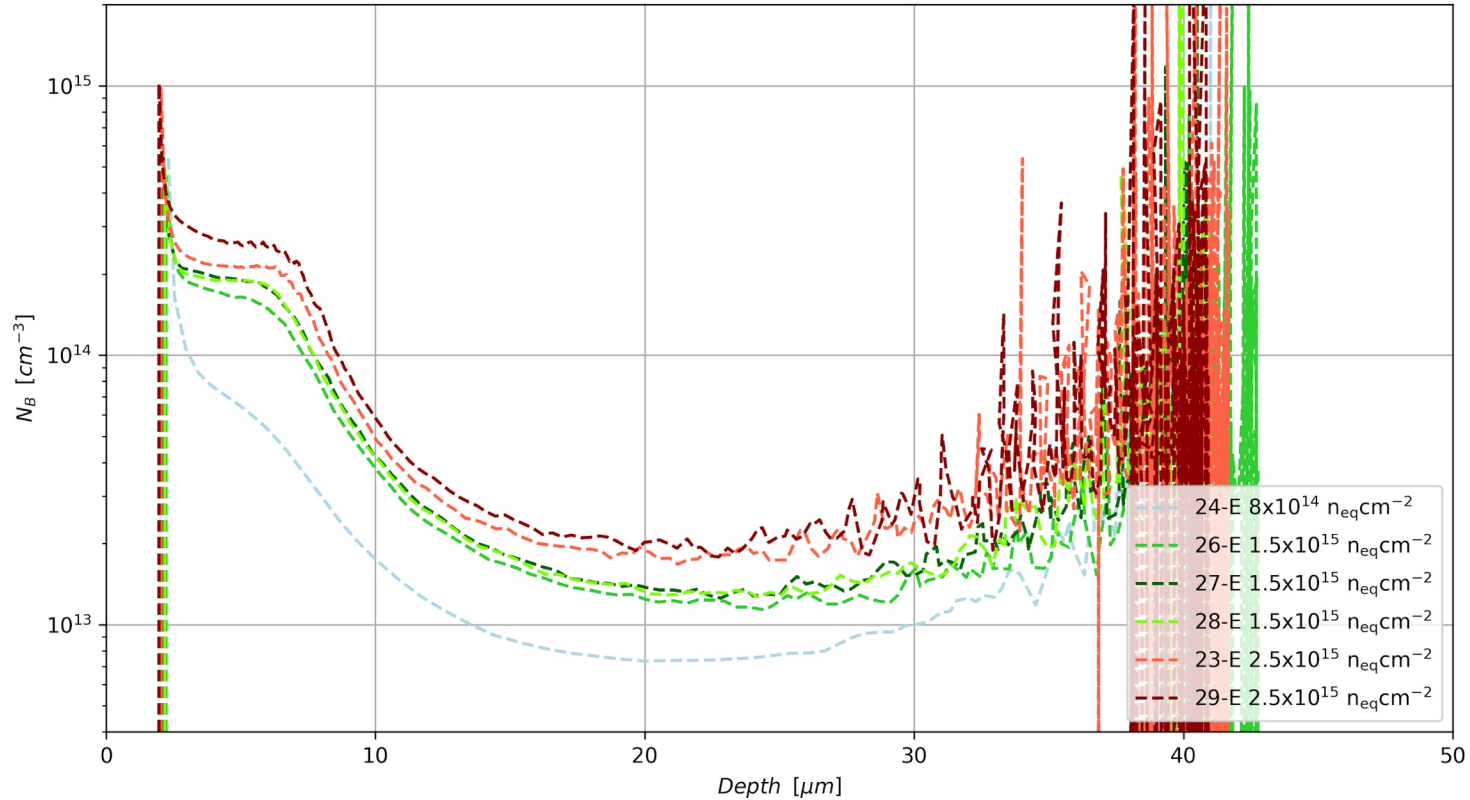
# W1 45 $\mu\text{m}$ - CV measurements

Measurements  
before irradiation  
NOT available



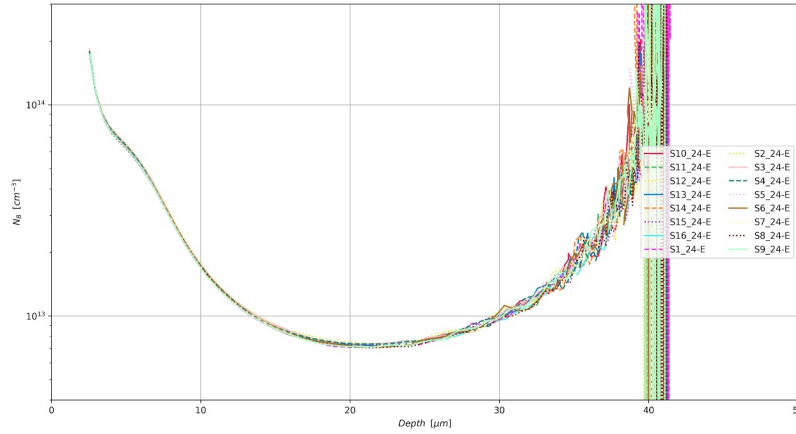
# W1 45 $\mu\text{m}$ - Doping profiles

Doping Profile - W1\_S4

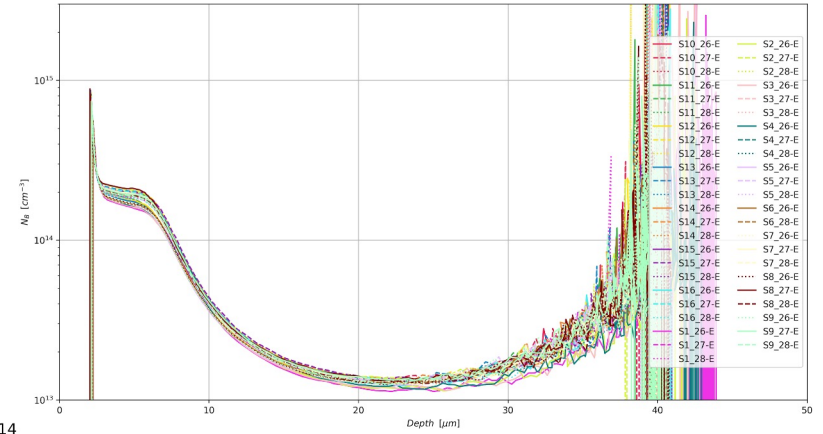


# W1 45 $\mu\text{m}$ - Doping profiles

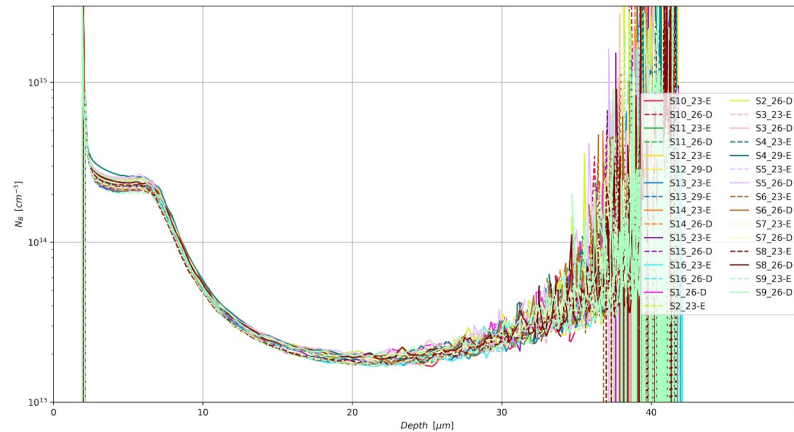
Doping Profile - W1 8e14



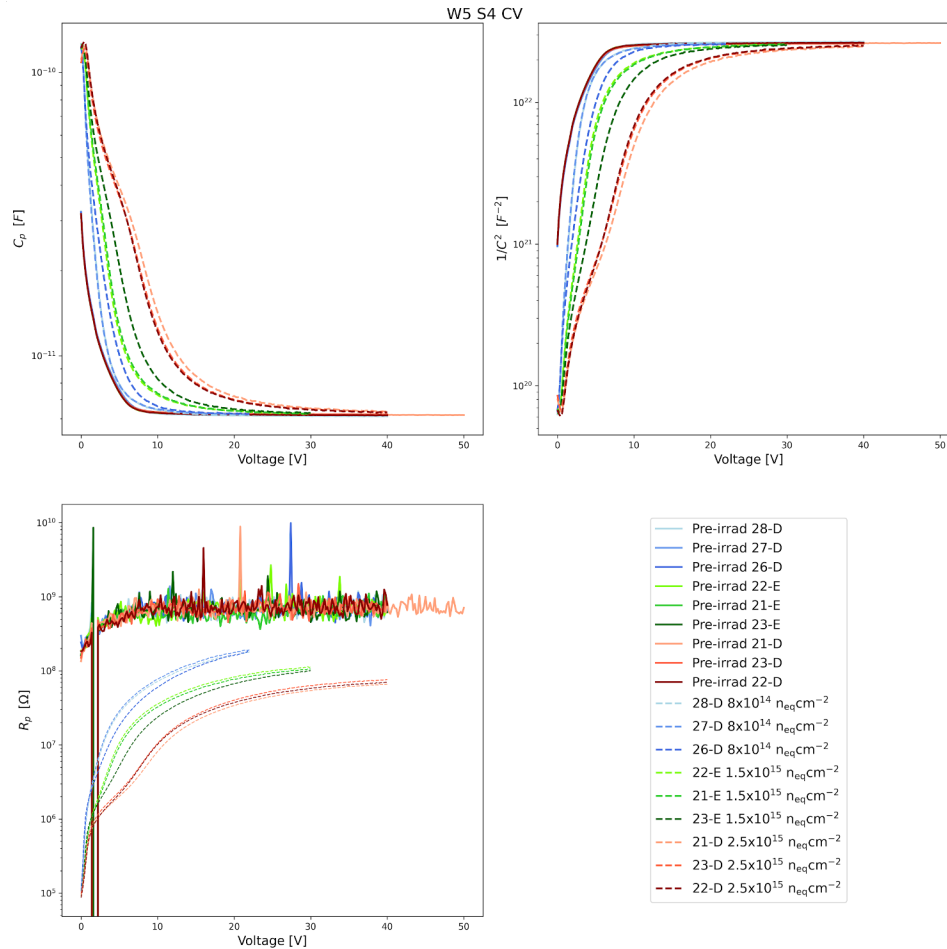
Doping Profile - W1 15e14



Doping Profile - W1 25e14

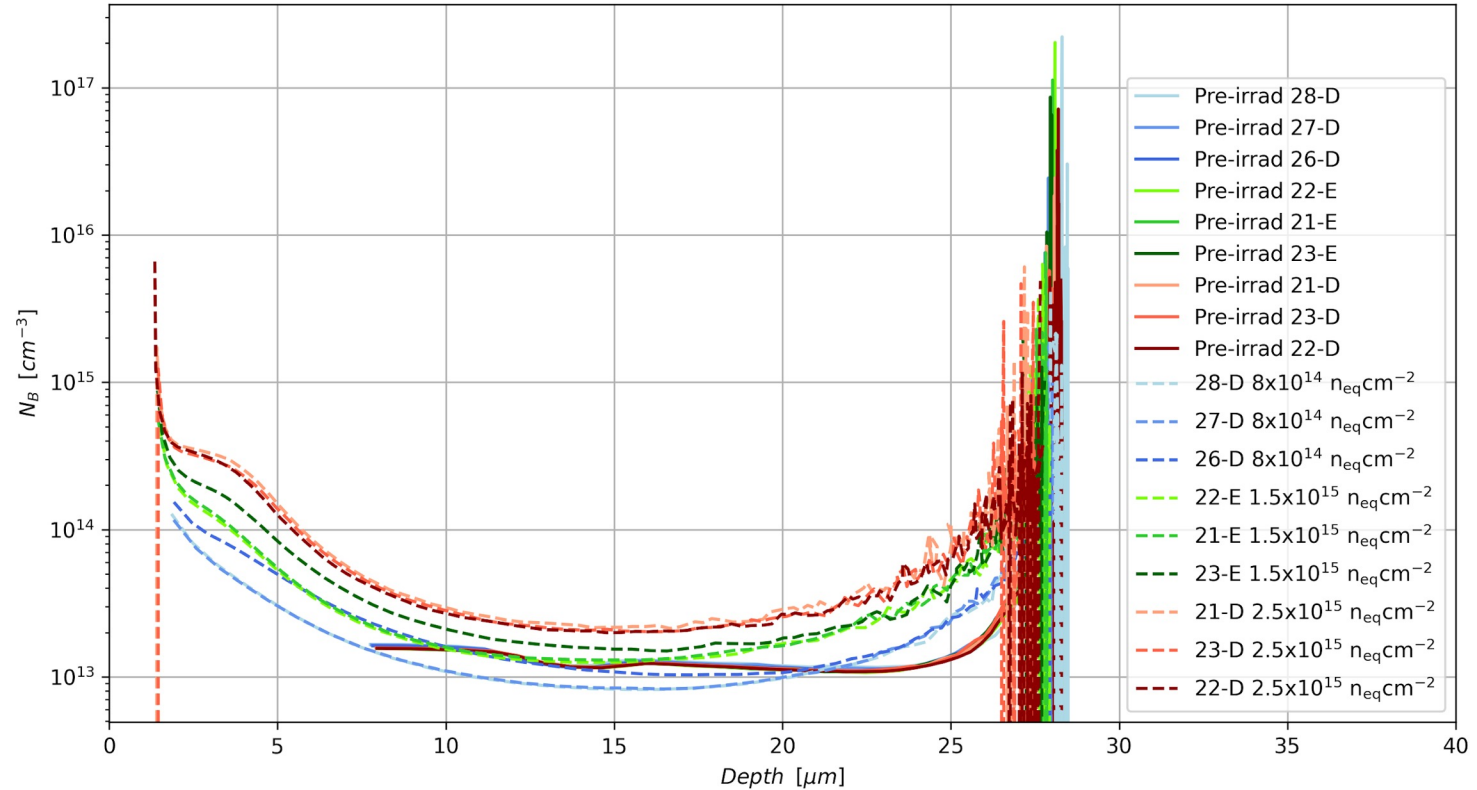


# W5 30 $\mu\text{m}$ - CV measurements



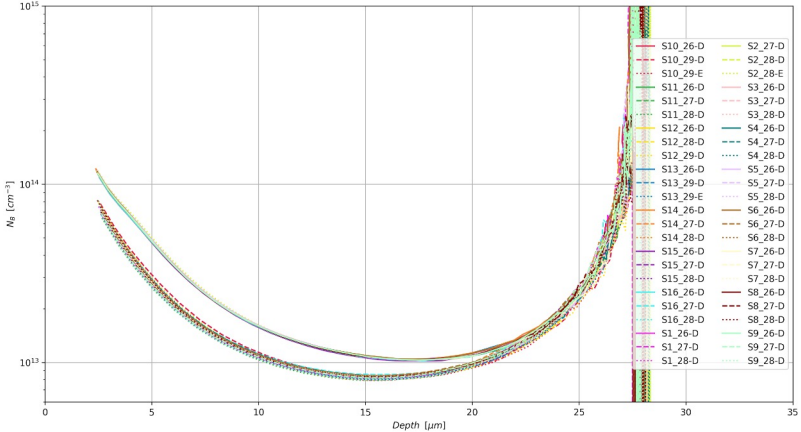
# W5 30 $\mu\text{m}$ - Doping profiles

Doping Profile - W5\_S4

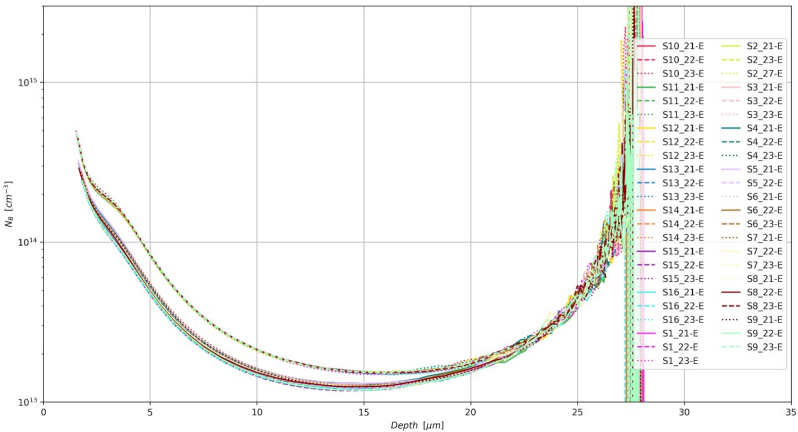


# W5 30 $\mu\text{m}$ - Doping profiles

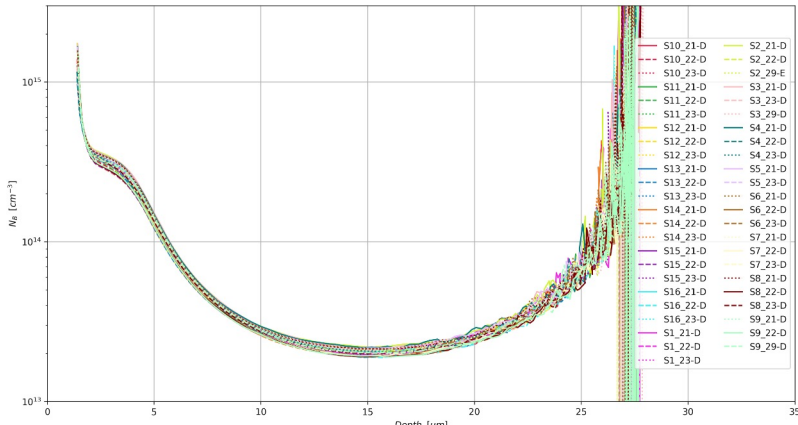
Doping Profile - W5 8e14



Doping Profile - W5 15e14



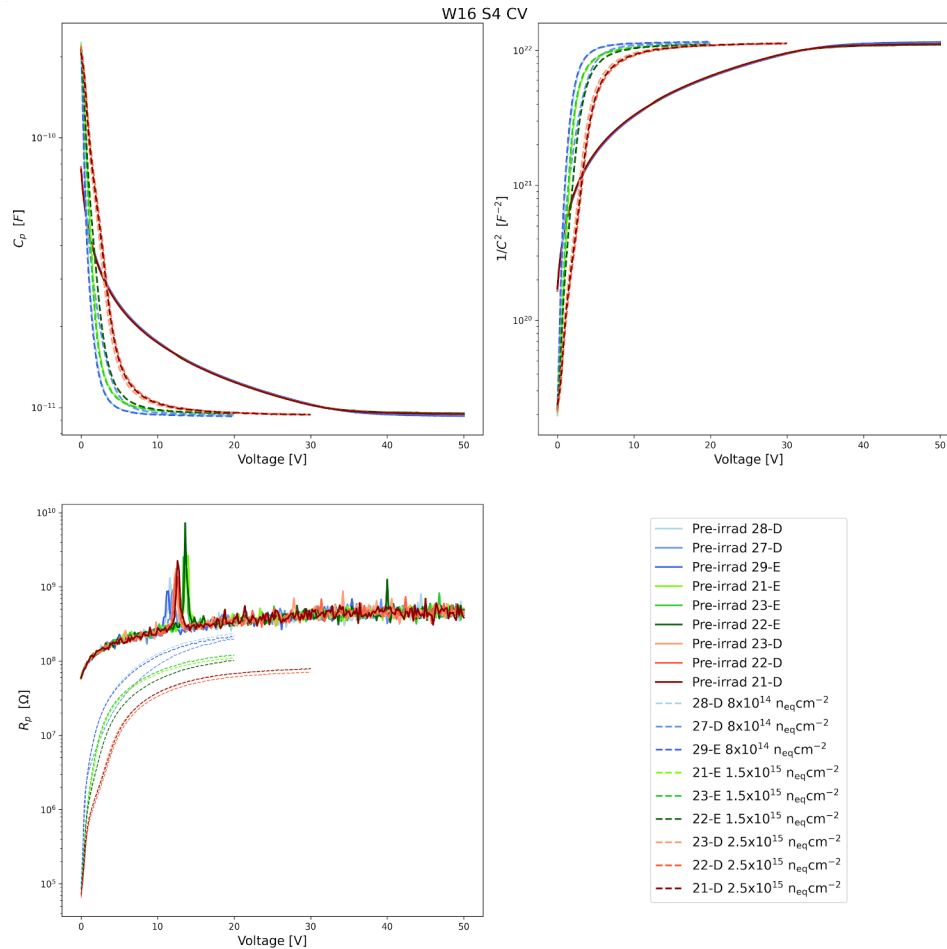
Doping Profile - W5 25e14



Small C offset present in some measurements, not removed yet

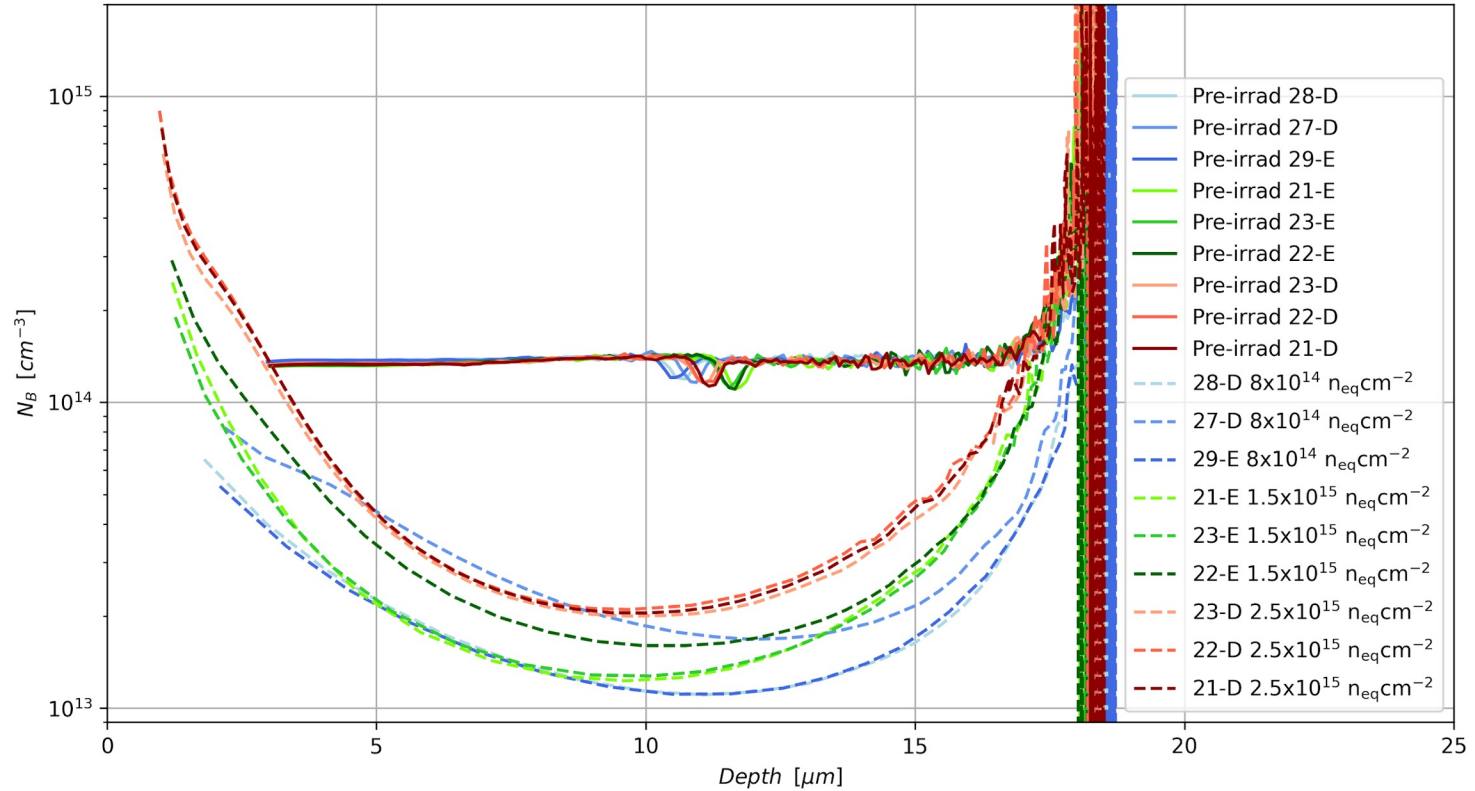


# W16 20 $\mu\text{m}$ - CV measurements



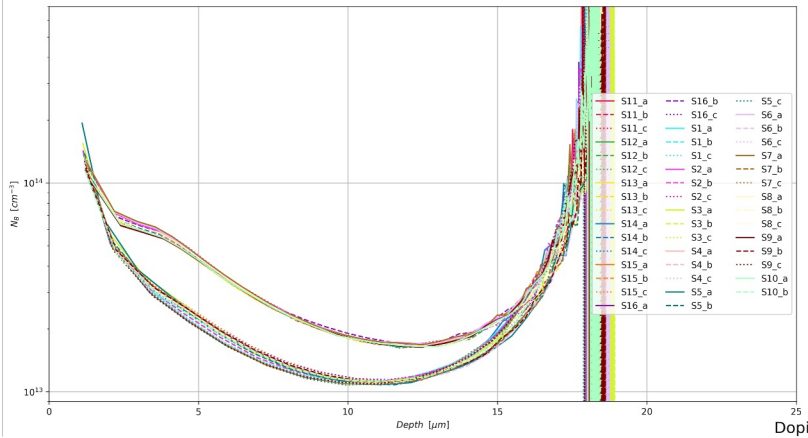
# W16 20 $\mu\text{m}$ - Doping profiles

Doping Profile - W16\_S4

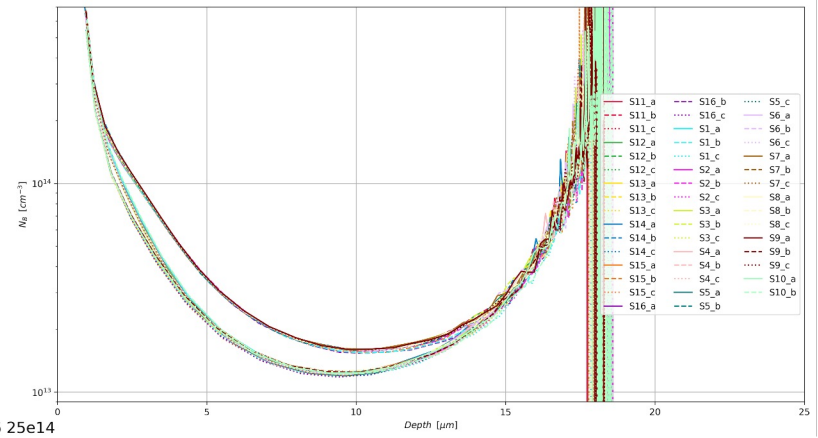


# W16 20 $\mu\text{m}$ - Doping profiles

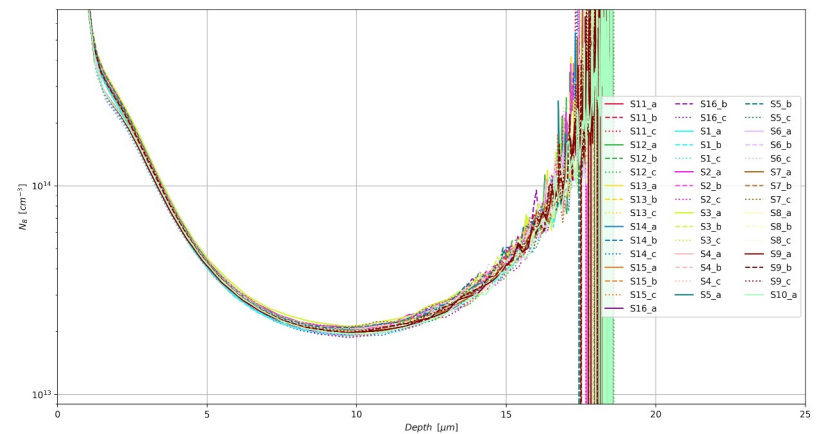
Doping Profile - W16 8e14



Doping Profile - W16 15e14

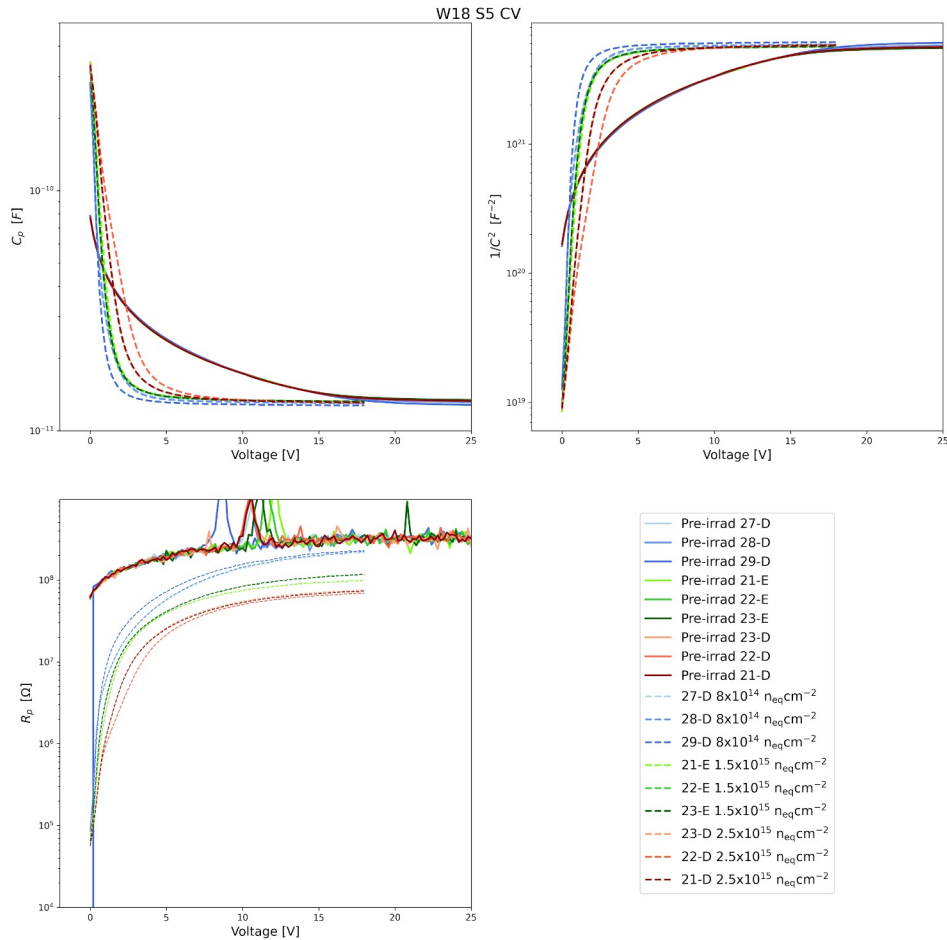


Doping Profile - W16 25e14



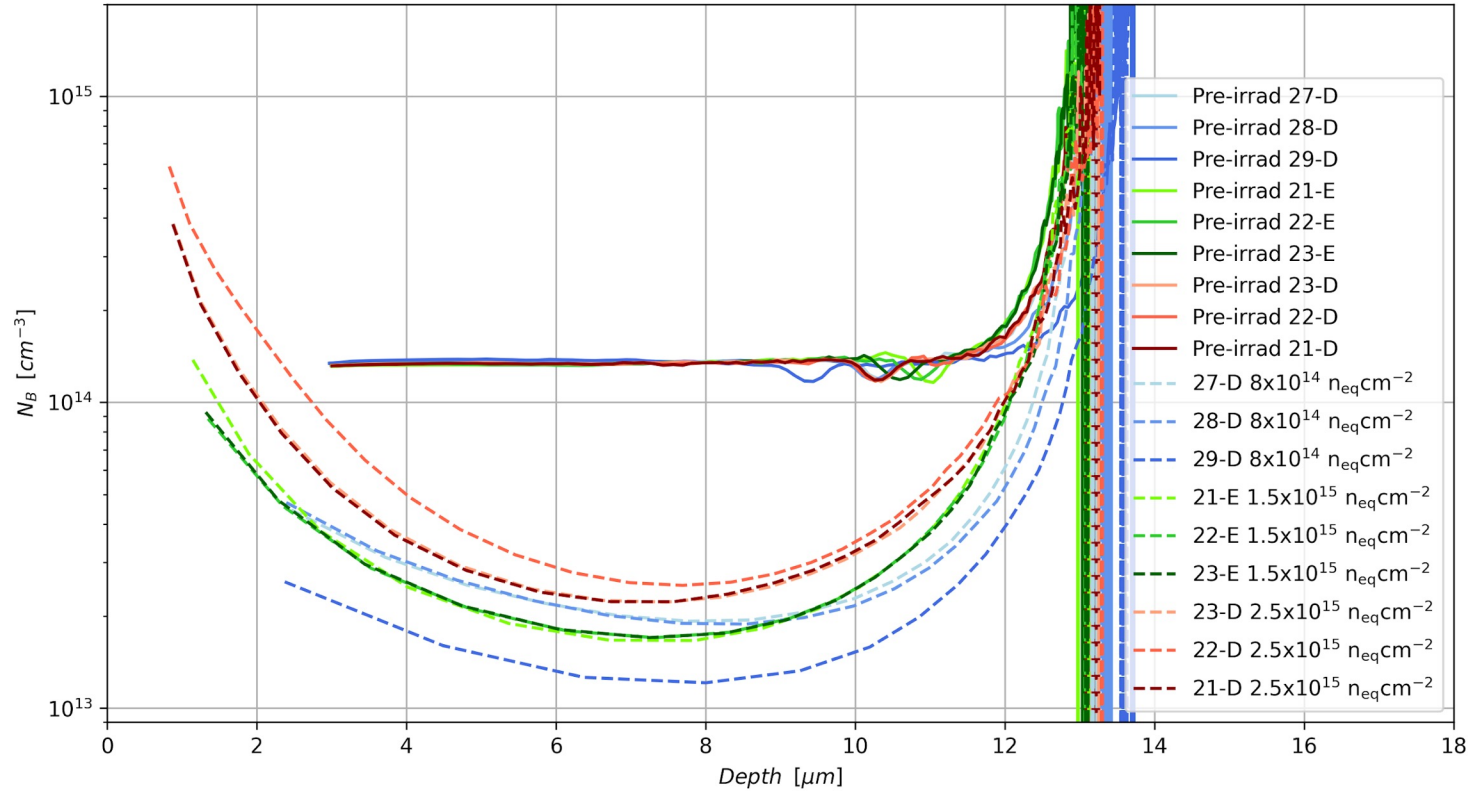
Small C offset present in some measurements, not removed yet

# W18 15 $\mu\text{m}$ - CV measurements



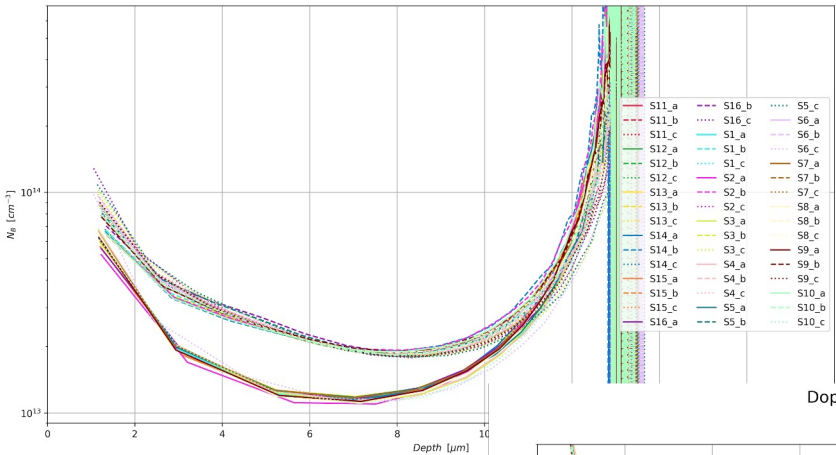
# W18 15 $\mu\text{m}$ - Doping profiles

Doping Profile - W18\_S5

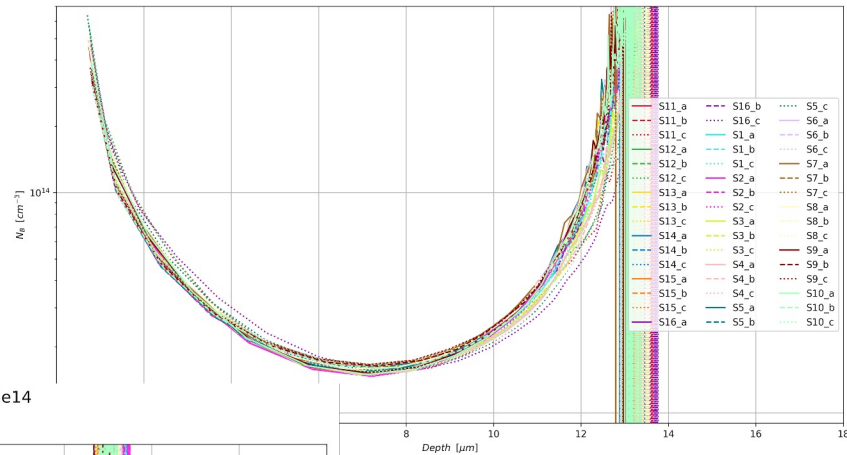


# W18 15 μm - Doping profiles

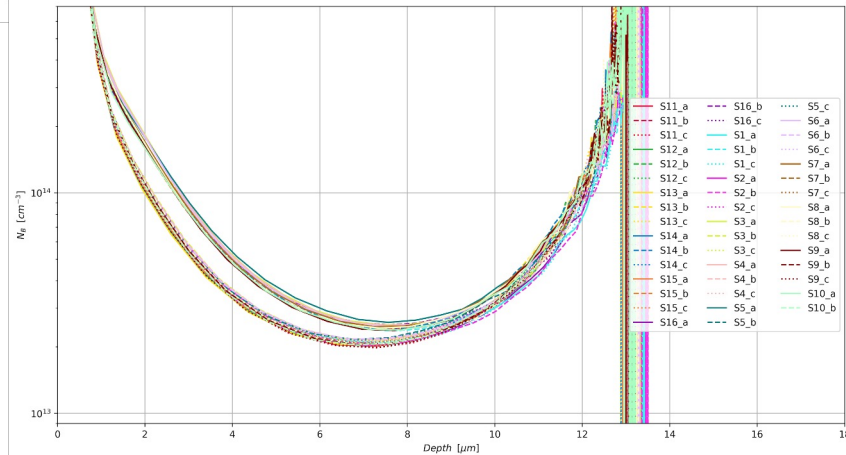
Doping Profile - W18 8e14



Doping Profile - W18 15e14



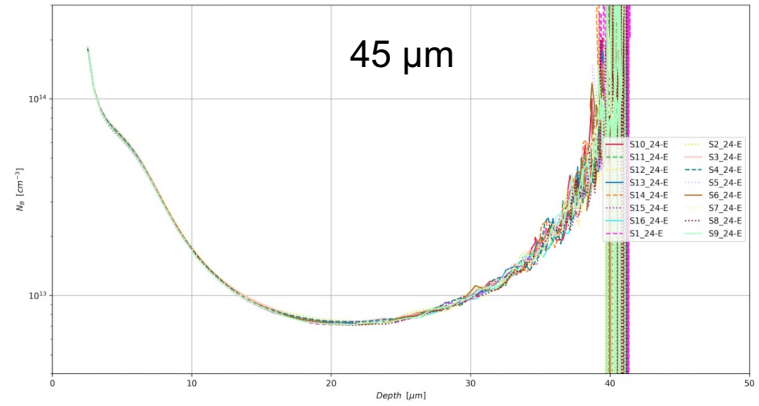
Doping Profile - W18 25e14



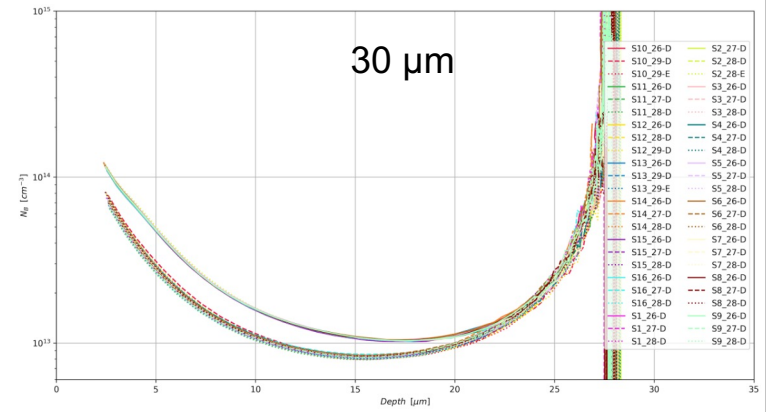
Small C offset present in some measurements, not removed yet

# 8E14 n<sub>eq</sub>/cm<sup>2</sup> - Doping profiles

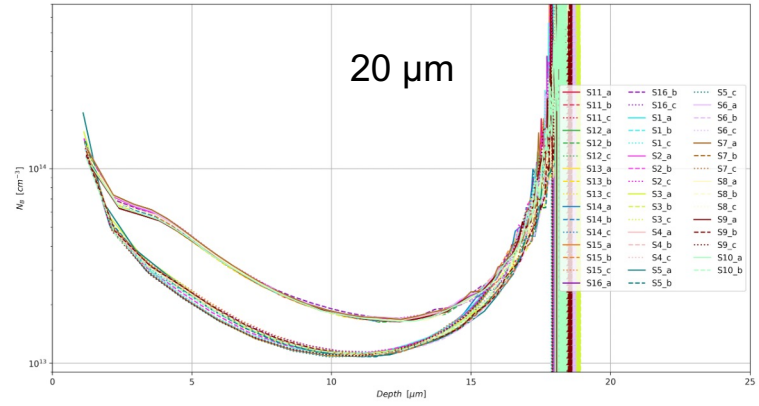
Doping Profile - W1 8e14



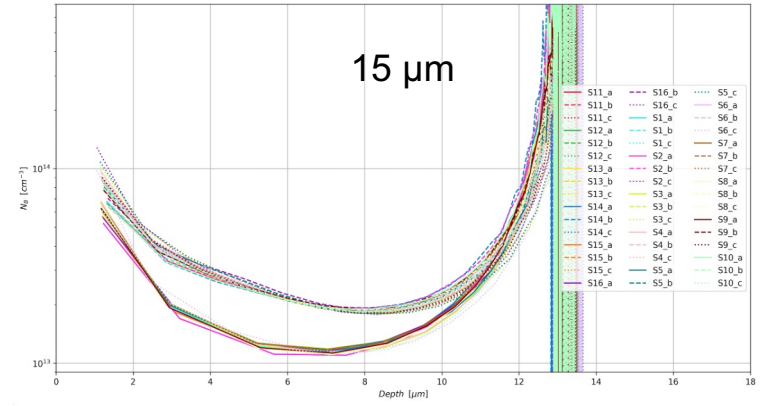
Doping Profile - W5 8e14



Doping Profile - W16 8e14

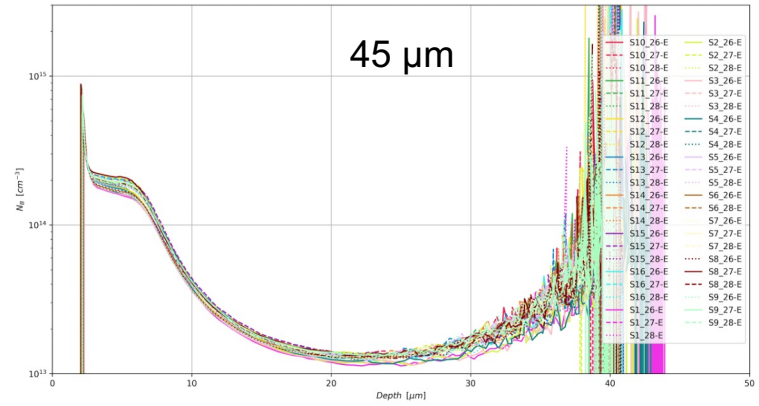


Doping Profile - W18 8e14

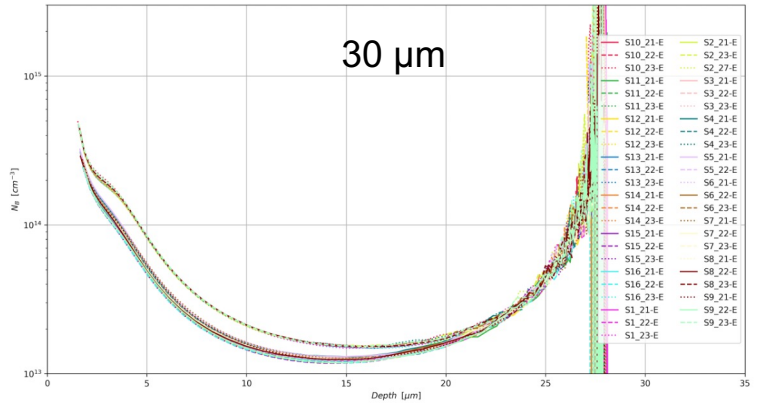


# 1.5E15 n<sub>eq</sub>/cm<sup>2</sup> - Doping profiles

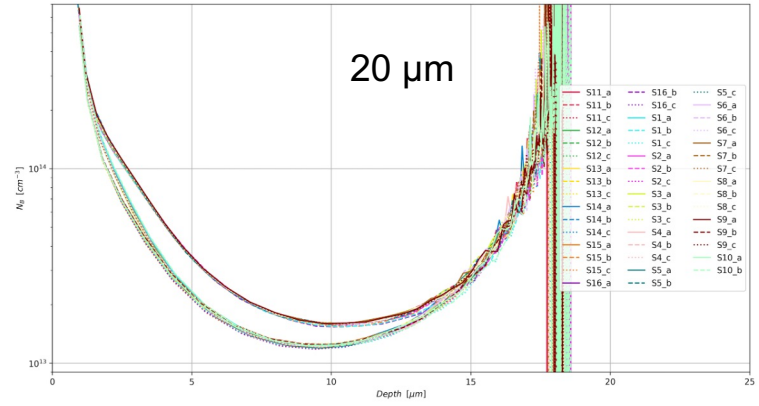
Doping Profile - W1 15e14



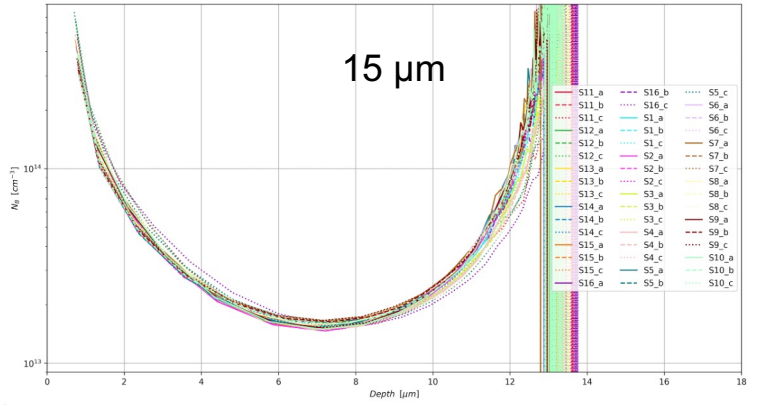
Doping Profile - W5 15e14



Doping Profile - W16 15e14



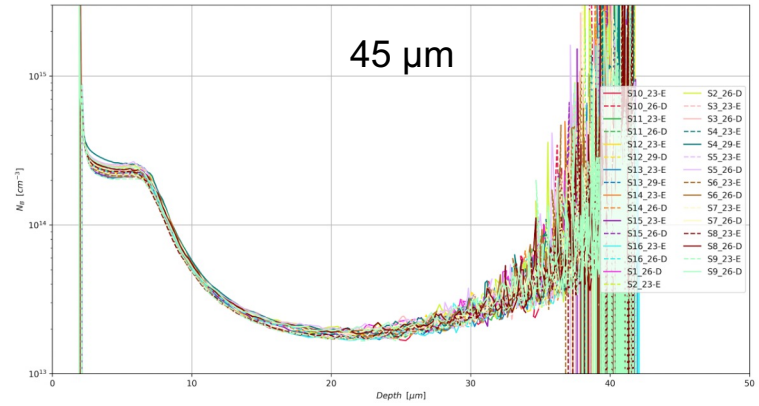
Doping Profile - W18 15e14



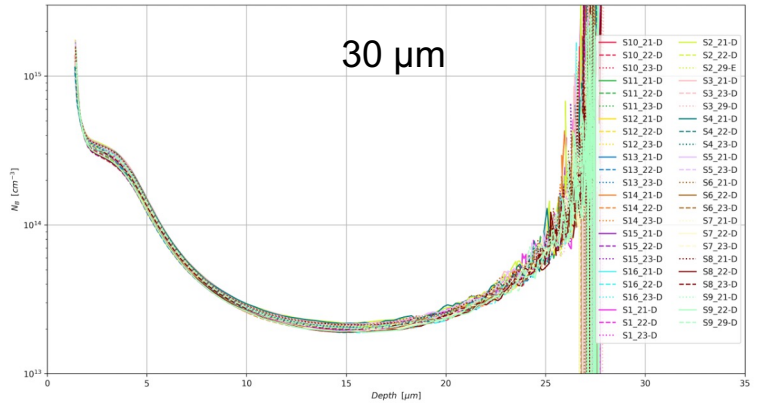


# 2.5E15 n<sub>eq</sub>/cm<sup>2</sup> - Doping profiles

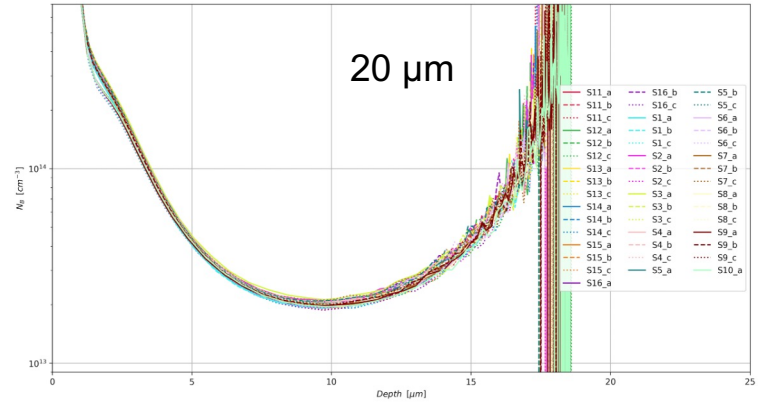
Doping Profile - W1 25e14



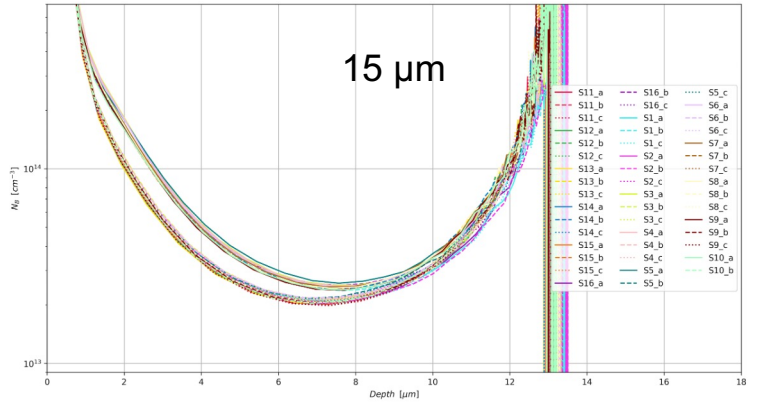
Doping Profile - W5 25e14



Doping Profile - W16 25e14



Doping Profile - W18 25e14



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