

Reporting slides:

1. B/W dust produced by arching
2. Boron reference coatings and

C. Porosnicu and team





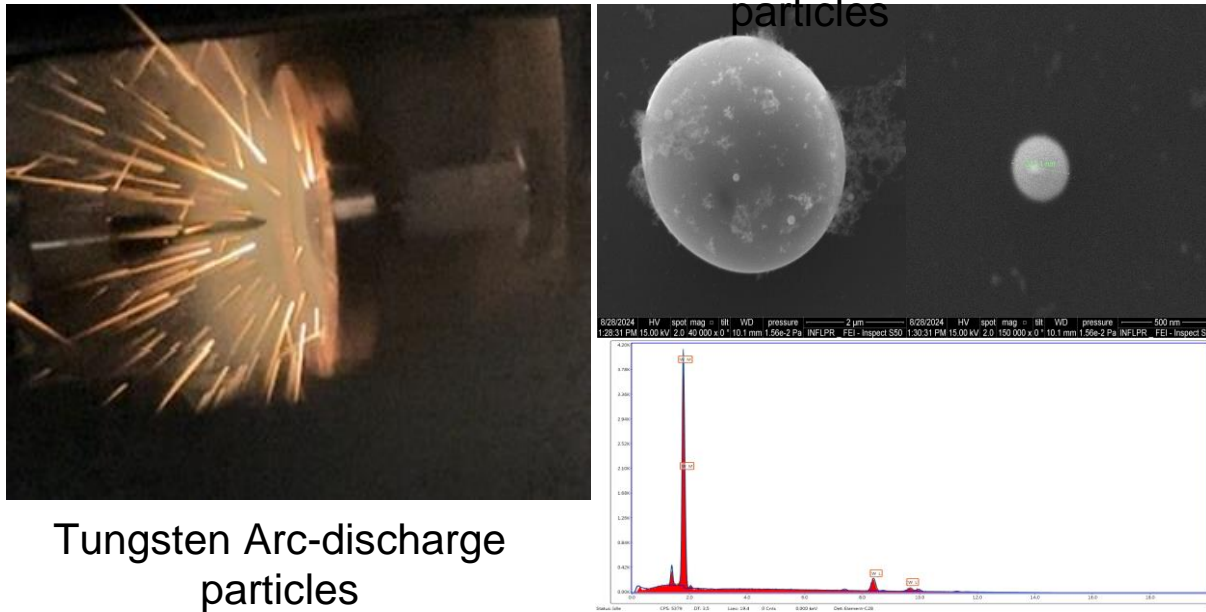
Production and analysis of B and W dustby arching

Aim: producing dust particles representative for those found in fusion reactors and understand the physics behind

❑ W dust: produced in an reactor with D, Ar and air.
Expected dust size 0.5 -1 μm

❑ B dust: produced in an reactor with D, Ar and air.
Expected dust size 0.5 -1 μm

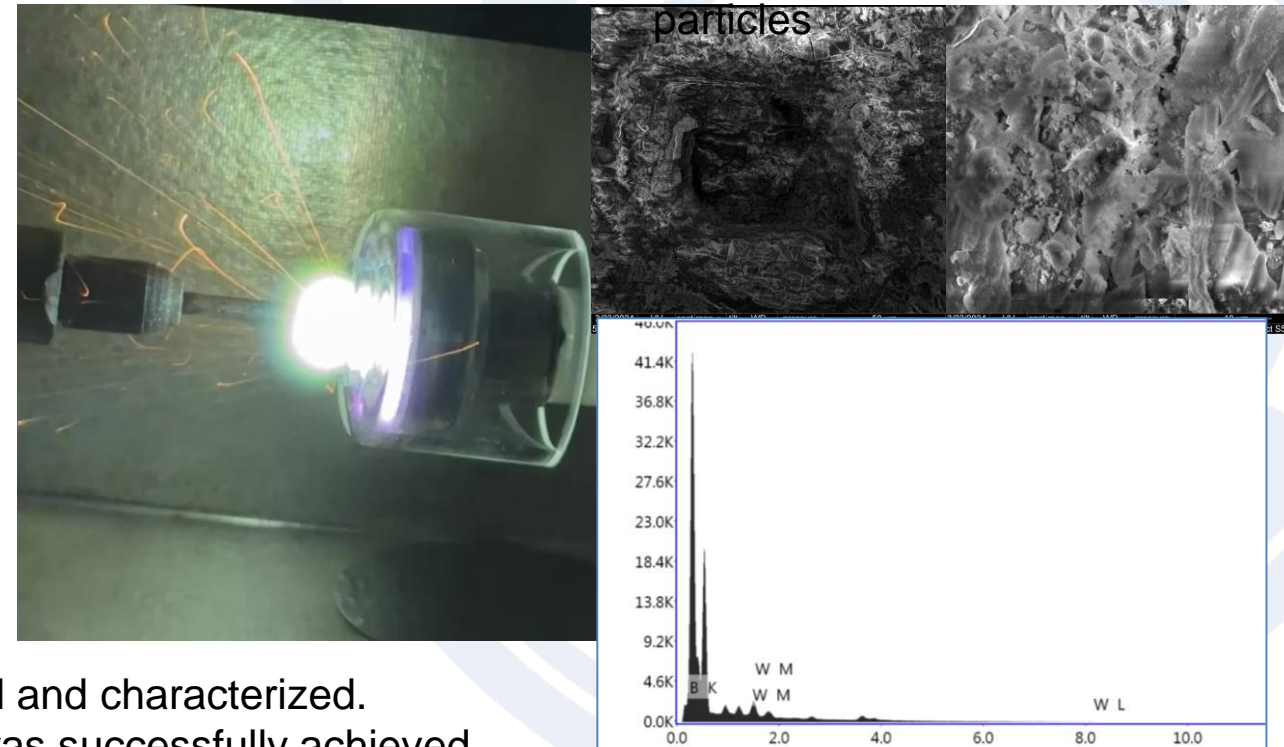
SEM images and EDS of W dust particles



$V_{\text{discharge}} = 850 \text{ V}$, $I_{\text{discharge}} = 140 \text{ A}$

Dust produced and characterized.
The expected size was successfully achieved.
High purity, high production rate

SEM images and EDS of B dust particles





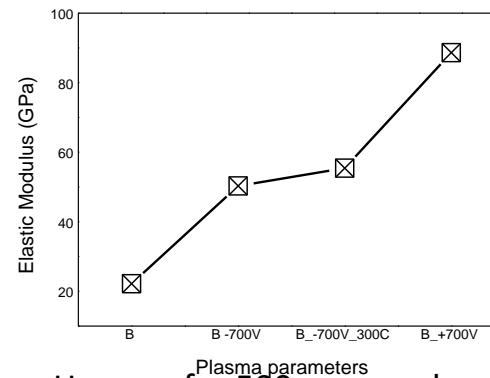
Production B reference samples under SPB4 -coatings with different roughness

Work already done

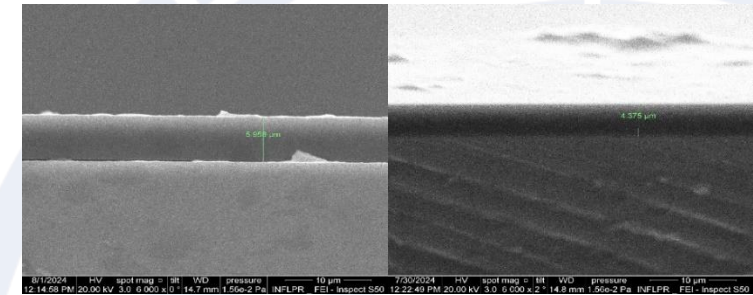
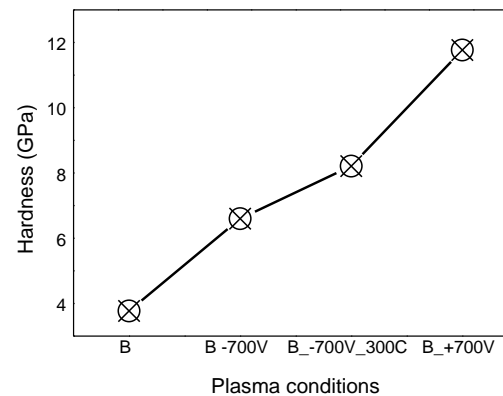
Cross-section SEM measurements of (left) B 0 V, RT and (right) B -700 V, RT

5 microns thick B coatings with different roughness
 Already delivered to Y. Zayachuk (UKAEA) for studies under SPB 5

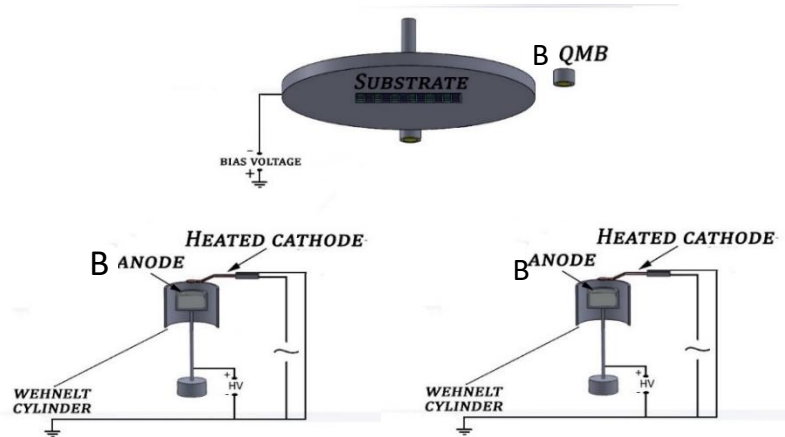
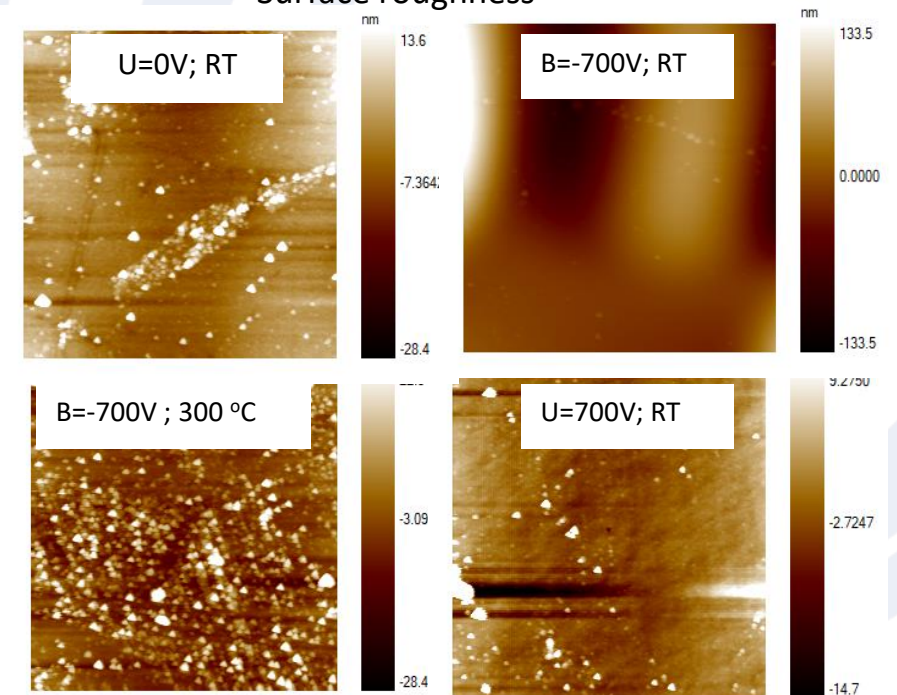
Elasticity modulus for 500 nm samples



Harness for 500nm samples



Surface roughness



Experimental set-up used for deposition of Be layers with TVA deposition technology

Coating plasma Parameters	Elastic modulus (GPa)	Hardness (GPa)	Ra (nm)
0 V, RT	22.19	3.77	4.1 nm
-700 V, RT	50.3	6.6	32.3 nm
-700 V, 300°C	55.42	8.21	5.8 nm
+700V, RT	88.64	11.77	2.6 nm

Hardness and roughness results (500nm coatings)