WP PWIE: IAP SPE KoM 2024

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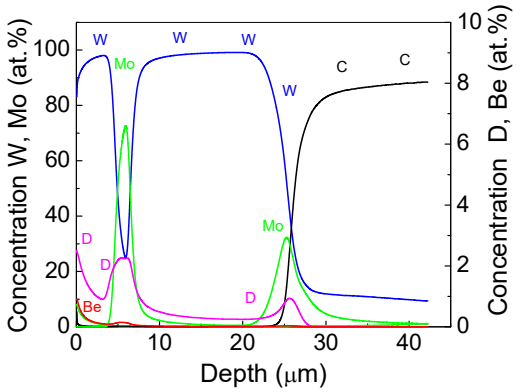
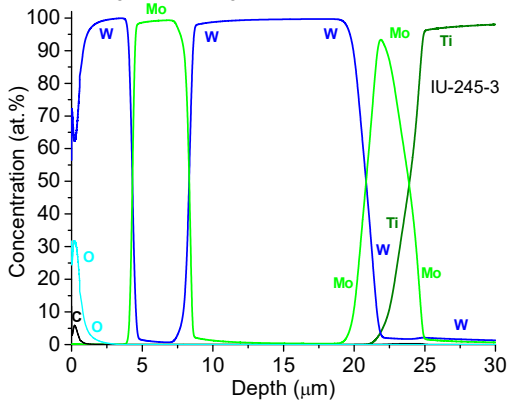
SP E.2 Comparison of hydrogenic retention quantification by different techniques and fuel removal assessment: IAP

- A number of 16 samples cored from the inner and outer JET divertor tiles 14BNG4D, 2BNG6C, 2ONG7A and 2ONG8B, exposed in the ***ILW2 + ILW3*** campaigns, have been analyzed by *GDOES*

Tile 4

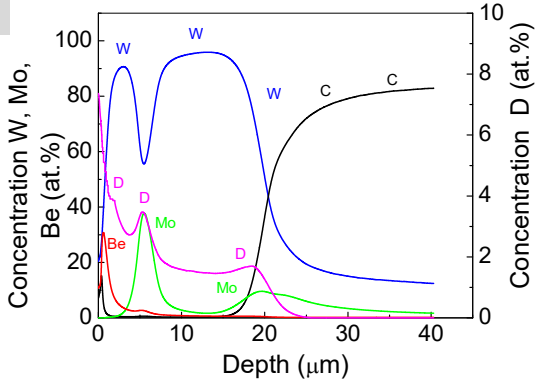


GDOES depth profile for the sample 14BNG4D-2d at s=914

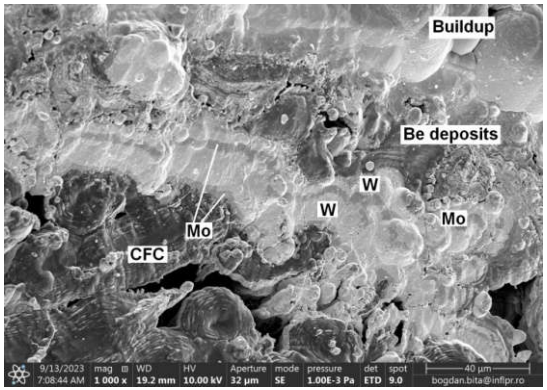


The original GDOES depth profiles for the tile 14BNG4D before plasma exposure in JET

Tile 6



GDOES depth profile for the sample 2BNG6C-9d at s=1538



SEM pictures taken on the GDOES crater flank for the sample 2BNG6C-7d (s=1494 after exposure in ILW2+ILW3)

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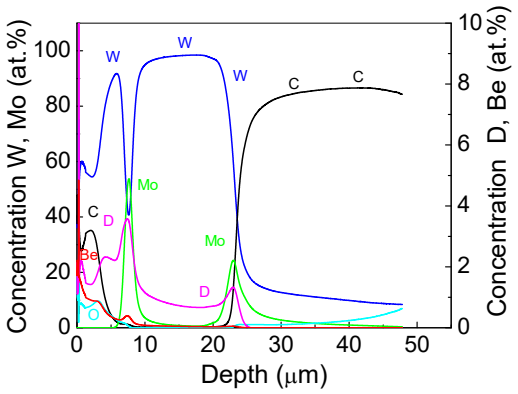
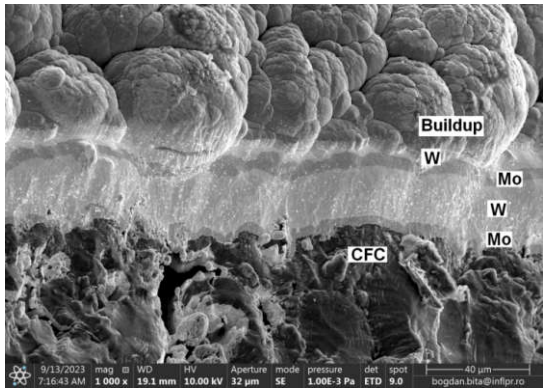
Tile 8



GDOES depth profile for the sample 2ONG8B-9d at s=2029



SEM pictures taken on the GDOES crater flank for the sample Tile 8 (2ONG8B-9d (after exposure in ILW2+ILW3)

Results:

- The amount of Be determined on each sample is in agreement with the general pattern for Be deposition on each type of tile already determined for individual *ILW-1, ILW-2* and *ILW-3* campaigns.
  - *Tile 4:* Be concentration has a maximum of about $2 \cdot 10^{18}$ at/cm^2 (s=747-810) then deceases to ~ $0.2 \cdot 10^{18}$ at/cm^2 at s=914.
  - *Tile 6:* Be concentration increases from $0.8 \cdot 10^{18}$ at/cm^2 for the area near to Tile 5 (s=1378) to $8 \cdot 10^{19}$ at/cm^2 below Tile 7 (s=1494) and then decreases to ~ $1 \cdot 10^{19}$ at/cm^{2}deep below Tile 7 (s=1538).
  - *Tile 7:* the amount of Be ranges from $3 \cdot 10^{18}$ at/cm^2 in the lower zone to about $2 \cdot 10^{18}$ at/cm^2 in the upper zone.
  - *Tile 8:* the Be deposition is very low. The Be concentration ranges between $0.3 \cdot 10^{18}$ at/cm^2 to $0.8 \cdot 10^{18}$ at/cm^2 on the top of the tile.
- Both mechanisms of D retention into the Be deposits and into the defects of W/Mo coating have been revealed

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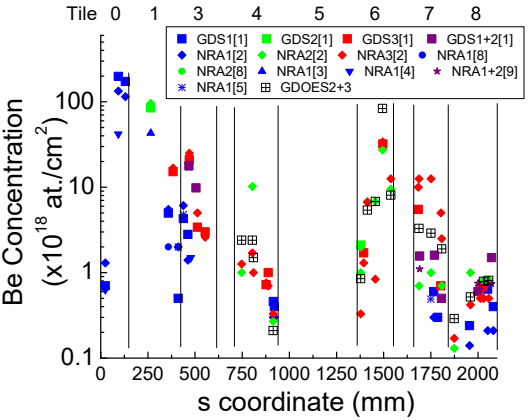

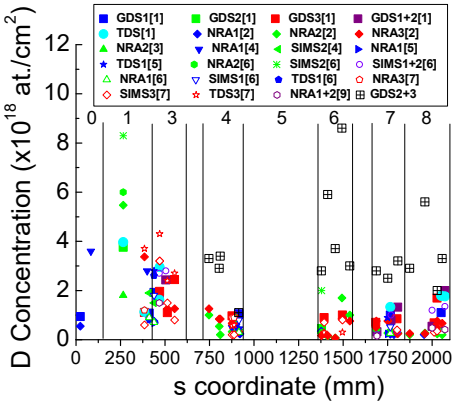

Be amount deposited on specific locations of JET divertor tiles and D retained on the tiles in those locations after plasma exposure in ILW1, ILW2, ILW3, ILW1+ILW and ILW2 + ILW3 campaigns

Conclusions after *GDOES* measurements:

- **Be deposition**: the values found by *GDOES* on the samples exposed in *ILW-2 +ILW-3* campaigns are generally in the same pattern as the values measured by other techniques on other samples cored from other tiles at the same s coordinates after exposure in *ILW-2* and *ILW-3* campaigns
- **D retention**: the amount of D measured on received samples seems to be larger in respect with the amounts measured on samples exposed to individual campaigns