

ET coating group workshop

May 30-31, 2024

The Roma 1 unit

Department of Physics (Sapienza)

INFN

CNR-ISC



SAPIENZA
UNIVERSITÀ DI ROMA



Speaker: **Ernesto Placidi**

People

Prof. E. Placidi (Sapienza-INFN)

Dr. A. Paolone (CNR-ISC)

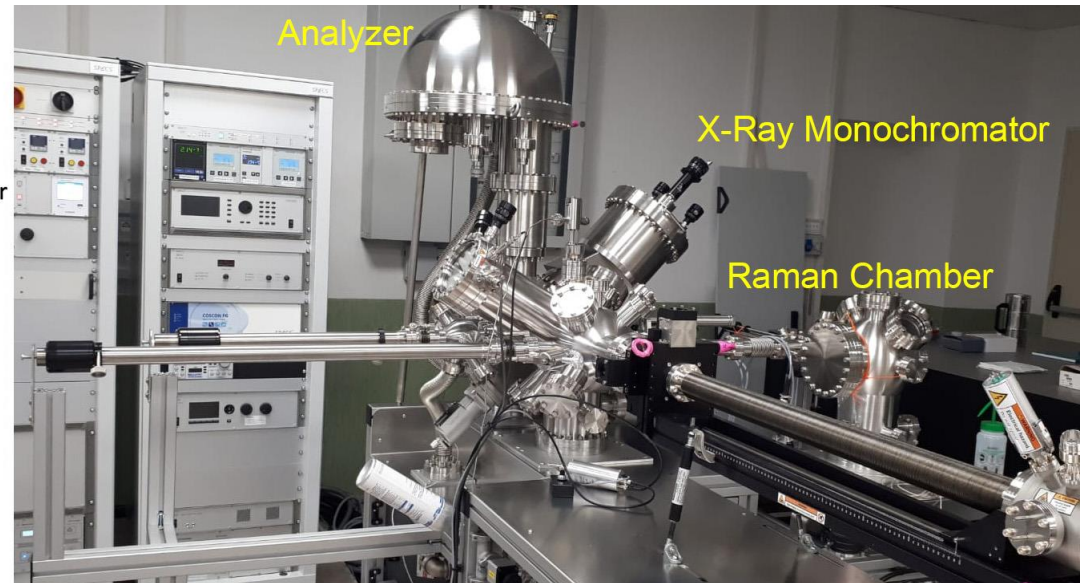
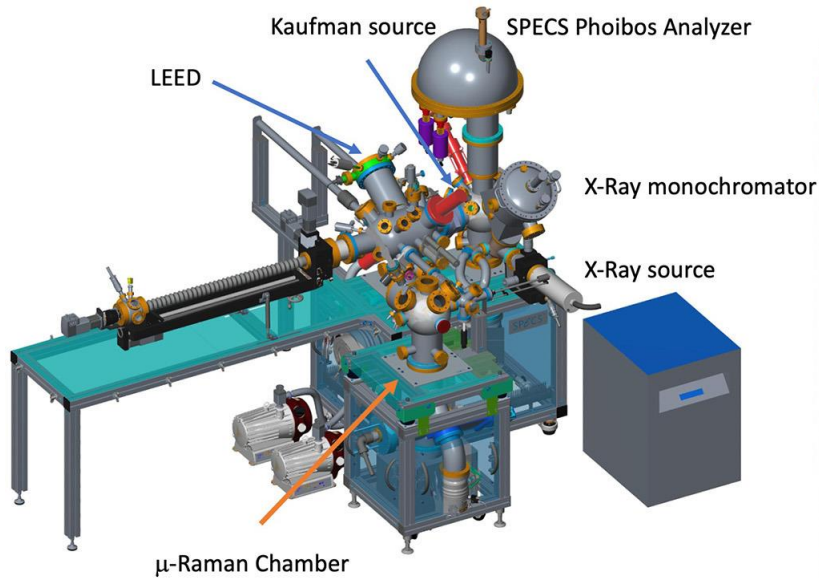
Dr. M. Sbroscia (Sapienza-INFN)

Facilities

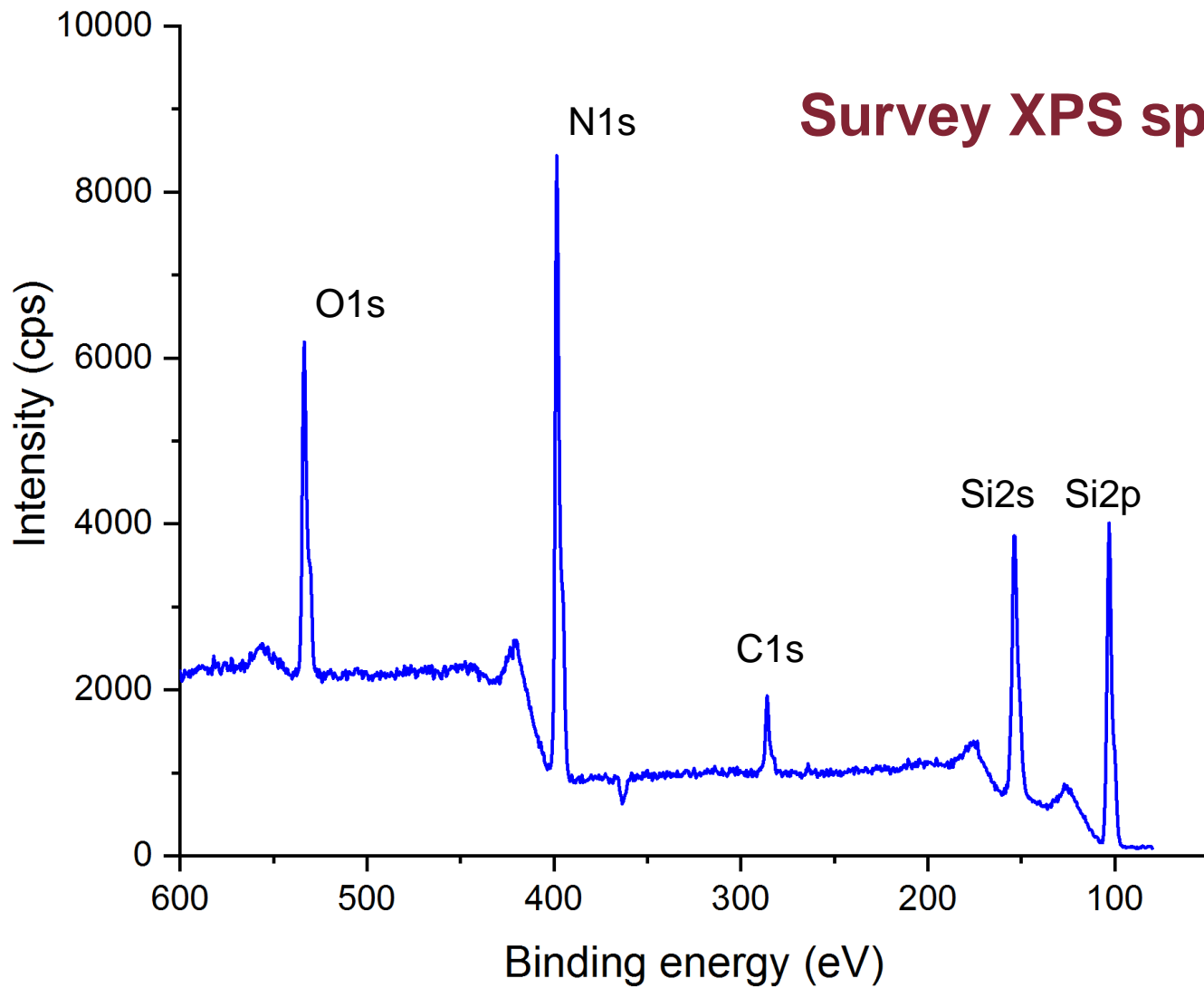
- X-ray Photoemission Spectroscopy (mono) and Spectromicroscopy (20-30 μ m)
- Raman Spectroscopy (In air and UHV)
- Atomic Force Microscopy
- Mass Spectrometry
- IR and SNOM

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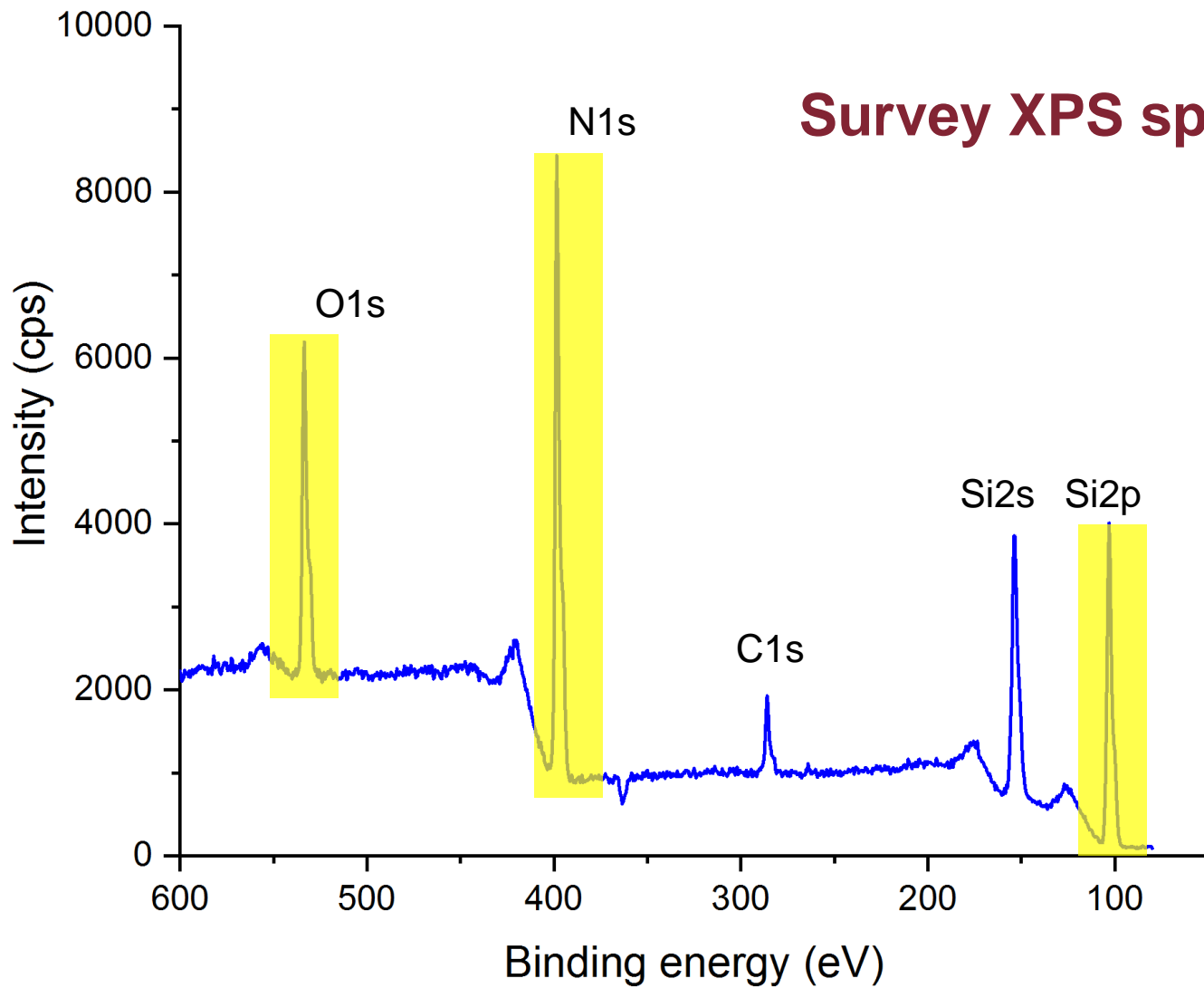
The new Spectro-microscopy in Sapienza.



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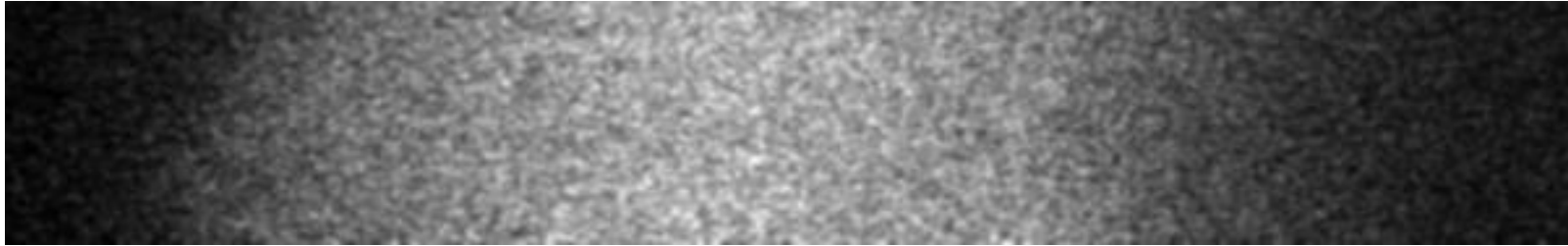


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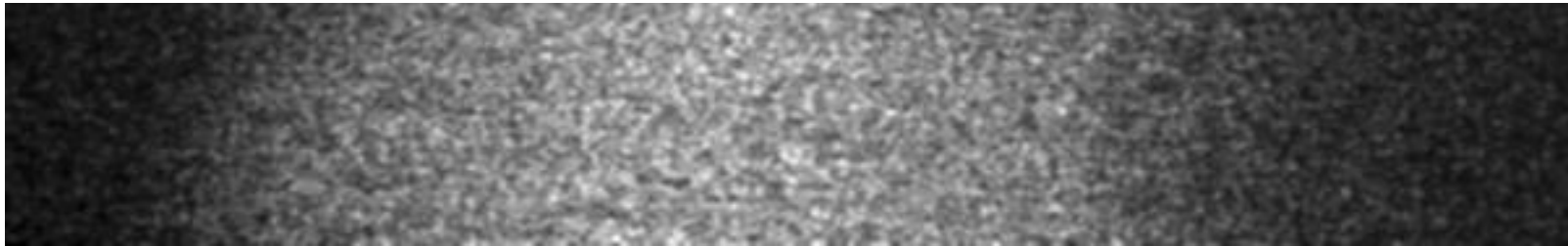


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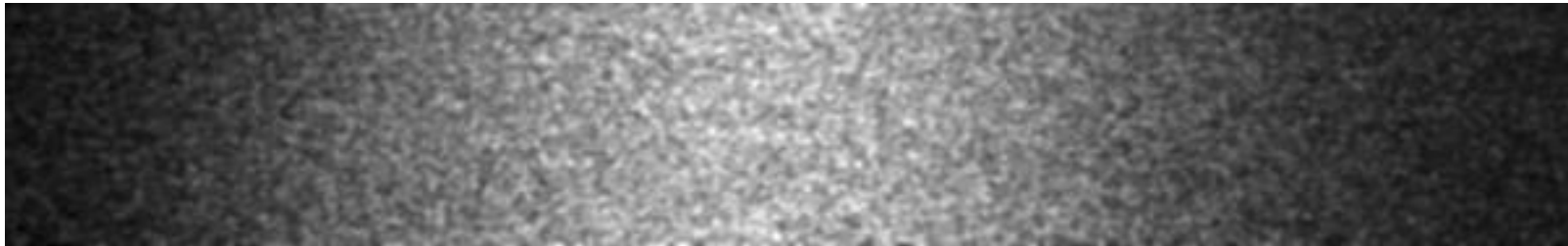
N1s map



Si2p map



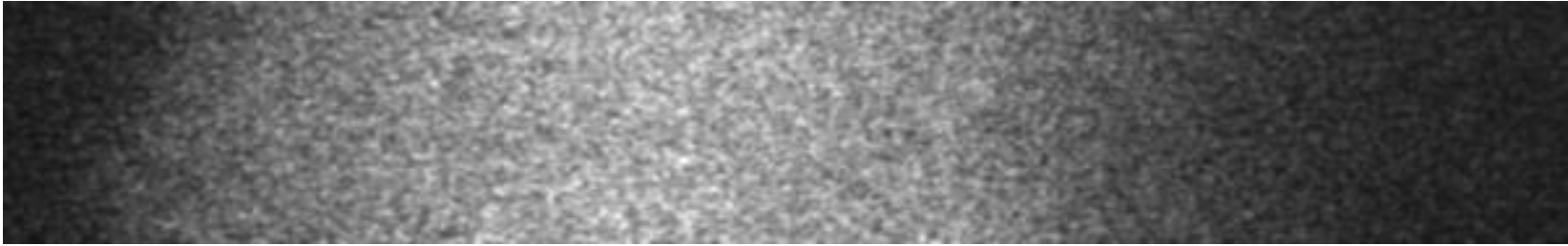
O1s map



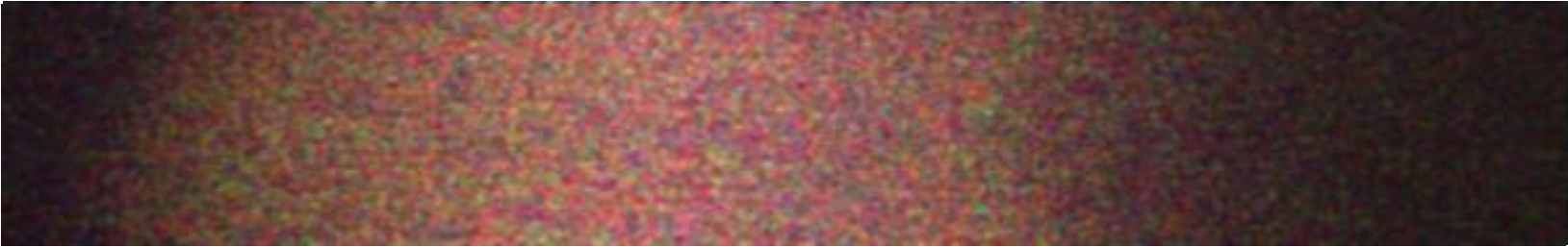
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Corrected by atomic sensitivity factor (ASF)

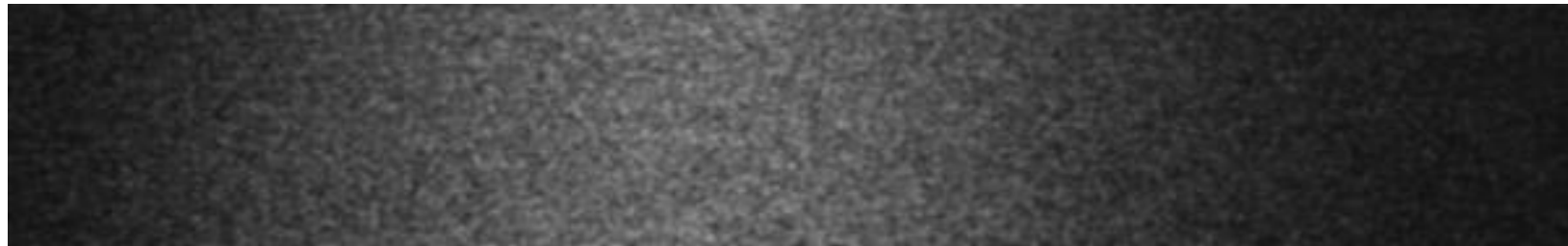
N1s map



Si2p map



O1s map

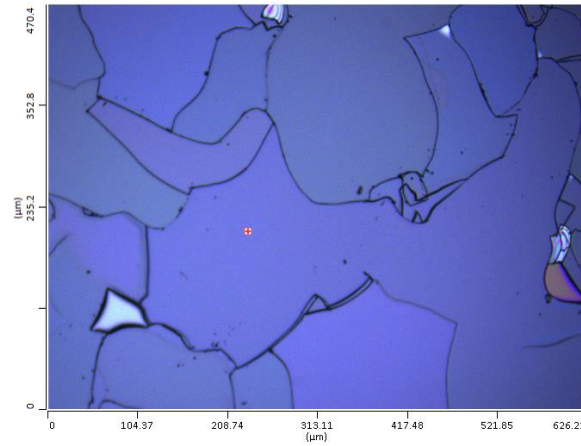
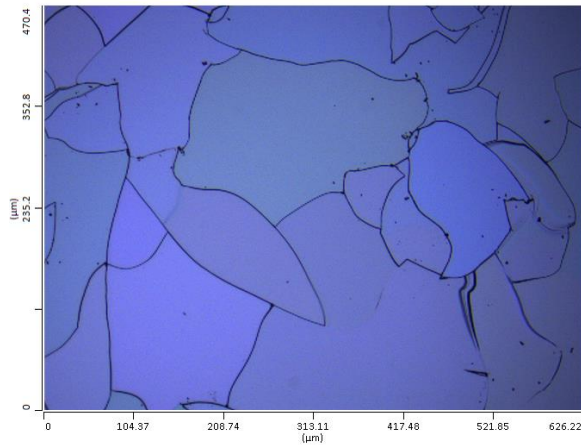


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Uncorrected



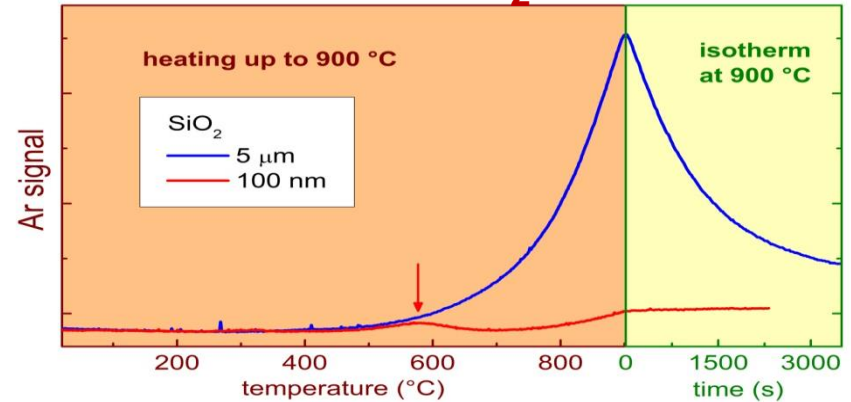
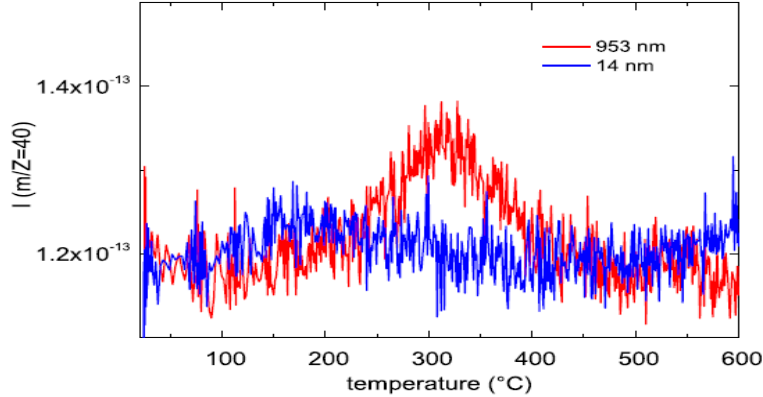
Corrected by atomic sensitivity factor (ASF)



Courtesy of Annalisa
Paolone
Acquired by mIRage

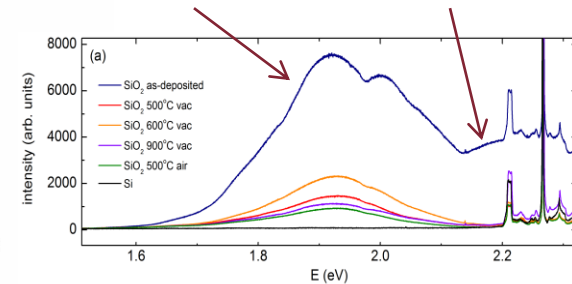
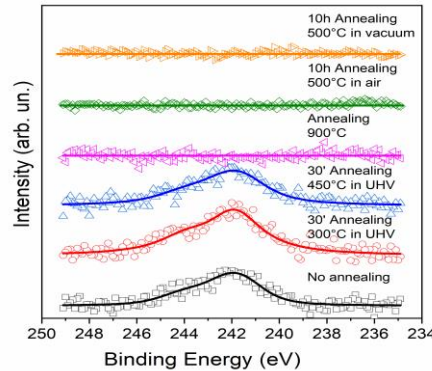
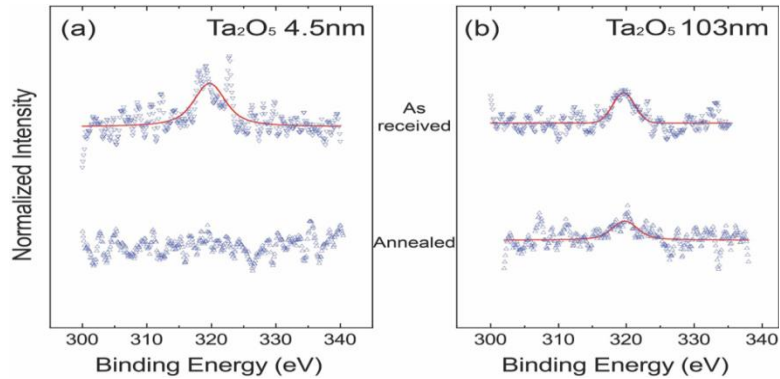
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Effusion of gases (mainly argon) from various SiO₂ oxides



Coatings 12, 1001 (2023)

Journal of Non-Crystalline Solids 557 (2021) 120651

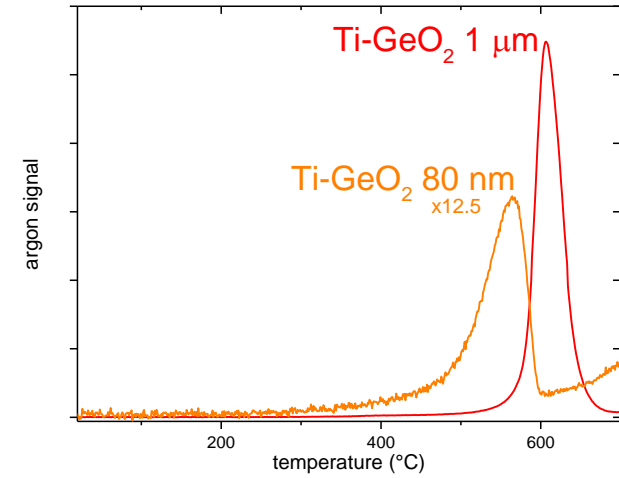
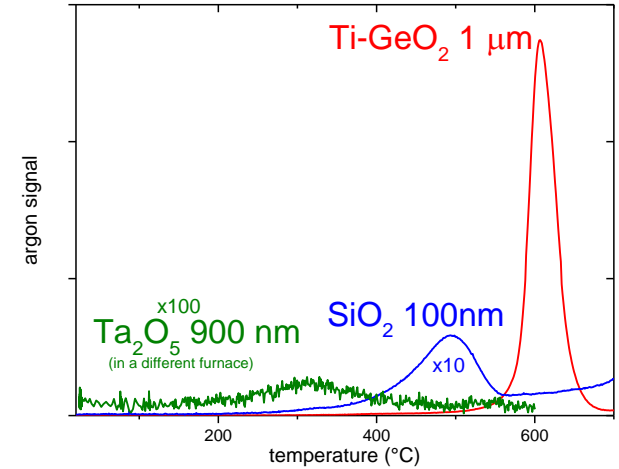


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Mass spectrometry measurements on Ti-GeO_2 A. Paolone

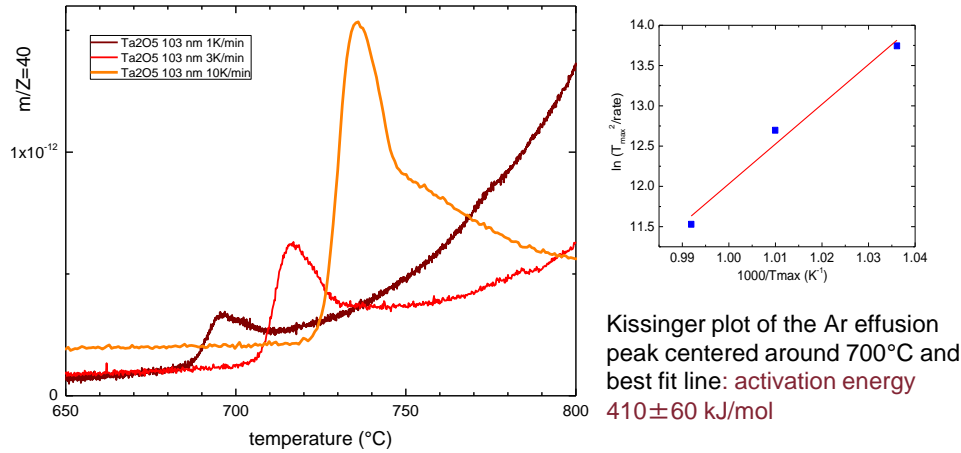


Émile Lalande *et al* 2024 *Class. Quantum Grav.* **41** 115013
<https://doi.org/10.1088/1361-6382/ad3ffb>

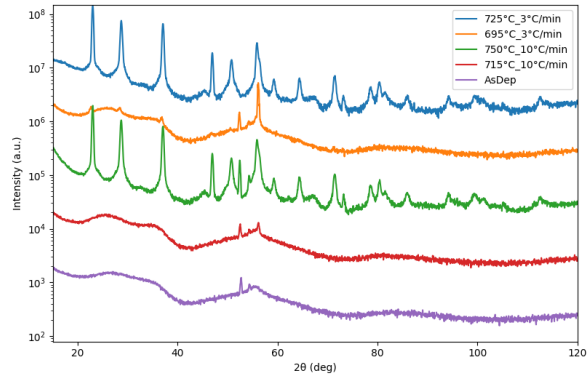


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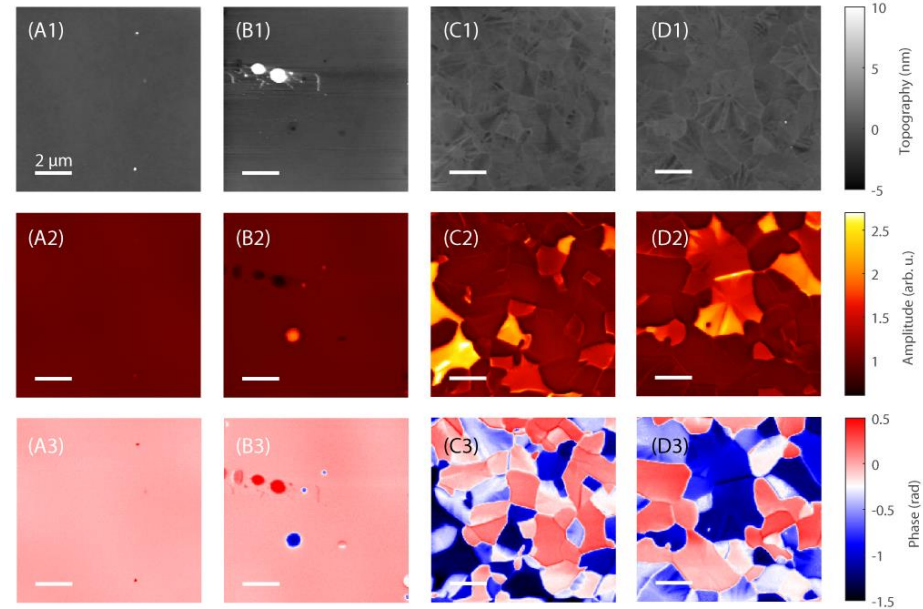
Ta₂O₅ : effusion at crystallization



XRD measurements (Bazzan, Favaro)



SNOM measurements



AFM topography (1), and near-field IR signals O3A (reflectivity) (2) and O3P (absorbance) (3) at 959 cm⁻¹ of the four Ta₂O₅ samples: pristine (A) and after thermal treatments in vacuum at 715 °C (B), at 750 °C (C) and at 850°C (D).