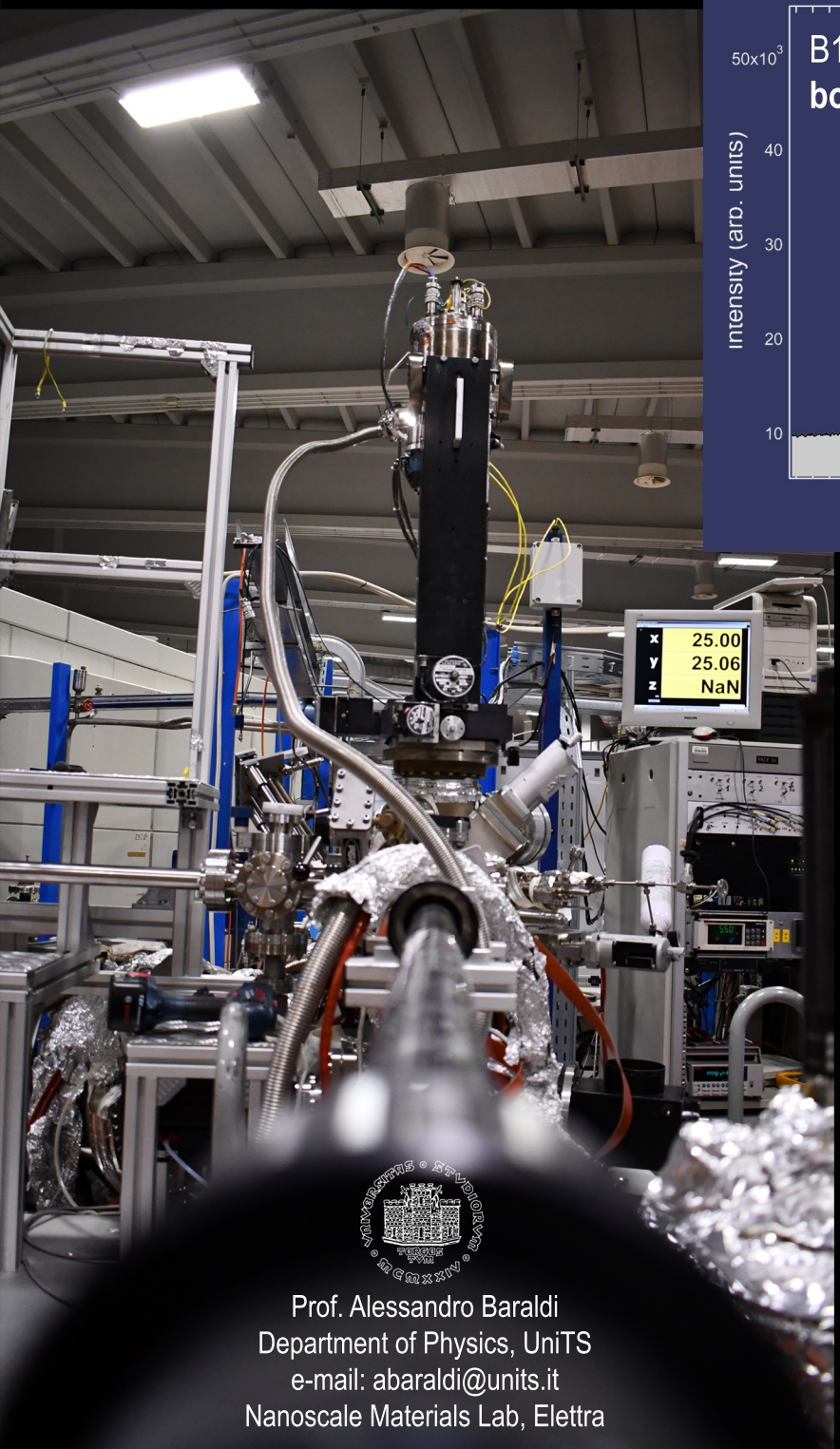
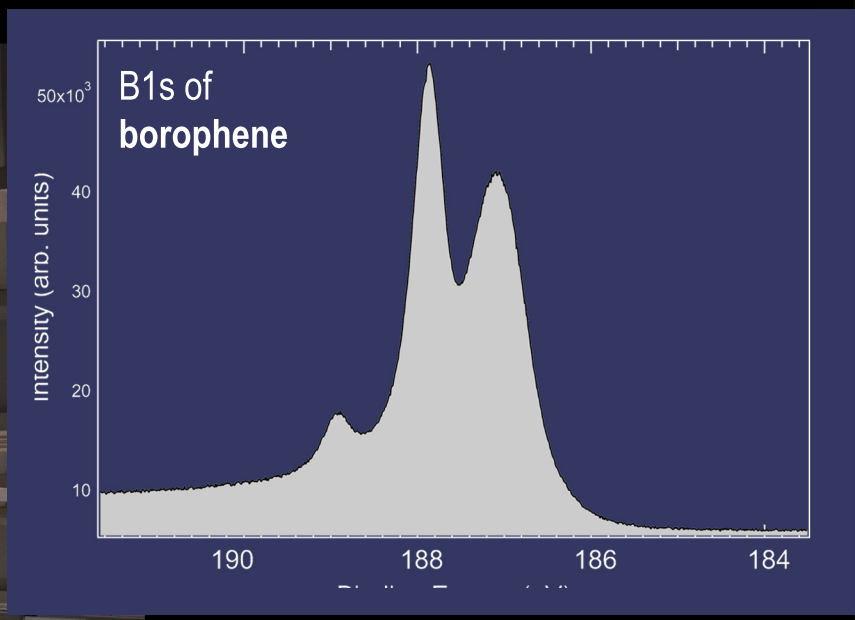
Spectroscopy of 2D materials

nmLab
nanoscale materials Laboratory

After the first synthesis of graphene the family of two-dimensional materials has grown at an impressive rate, with transition metal dichalcogenides and Xenes which have been added in the more recent years. The possibility to combine these ultra-thin sheet of matter in the so called van der Waals hetero-structures has opened the door to the developement of valleytronic devices, where the valley degree of freedom of the electronic structure can be used to carry the information.

One of the goals of the Nanoscale Materials Lab in combination with the SuperESCA beamline research group is to exploit the unique properties of the synchrotron radiation produced by Elettra to grow and characterize 2D materials with the best structural qualities, since defects largely modify their unique transport properties.





Photoelectron spectroscopy is an ideal tool to investigate the structural, electronic and chemical properties of 2D materials, to follow in-situ their growth process and to understand their thermal behaviour in a temperature range that can be finely tuned from 20 to 1000 K.

If you want to join us in this exciting challange for your **Bachelor** or **Master** degree do not hesitate to contact us !

Prof. Alessandro Baraldi
Department of Physics, UniTS
e-mail: abaraldi@units.it
Nanoscale Materials Lab, Elettra