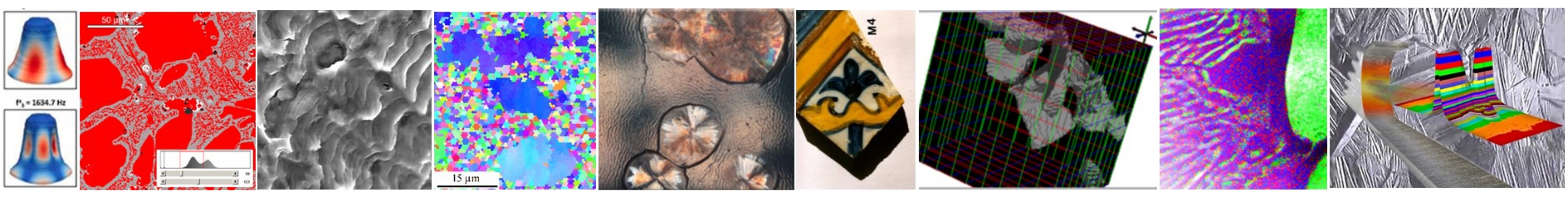
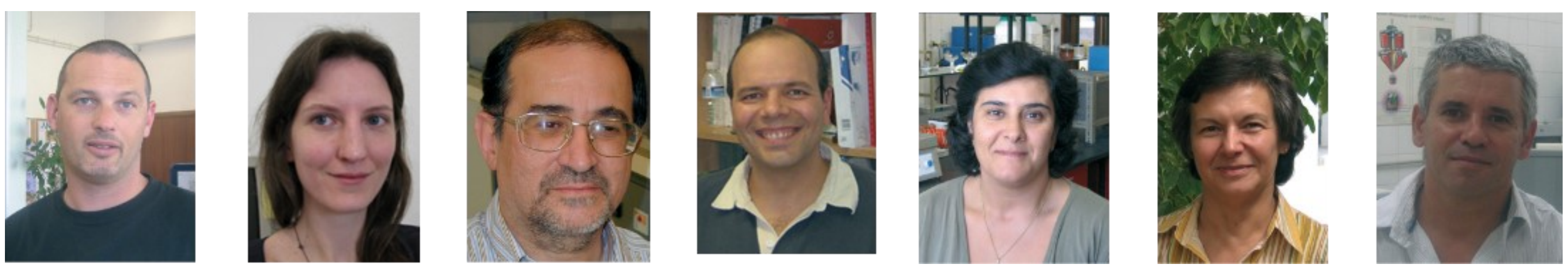
Structural Materials





Strategic activities

Materials nanostructuring:

-Severe plastic deformation,

Sintering glasses and glass-nanoceramic,

Functionally graded materials.

Micro and nano-scale characterization

Synchrotron radiation techniques,

Cultural materials,

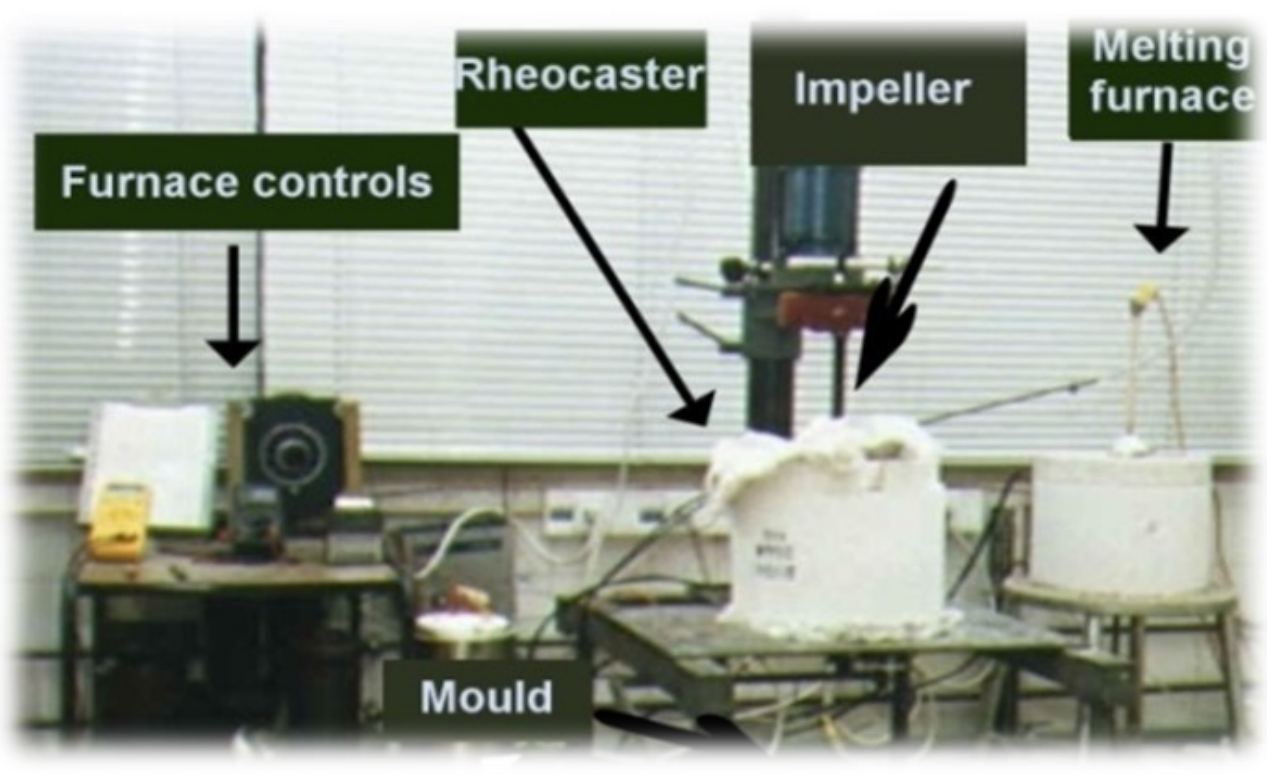
Microtomographic 3D image reconstruction.

Modelling

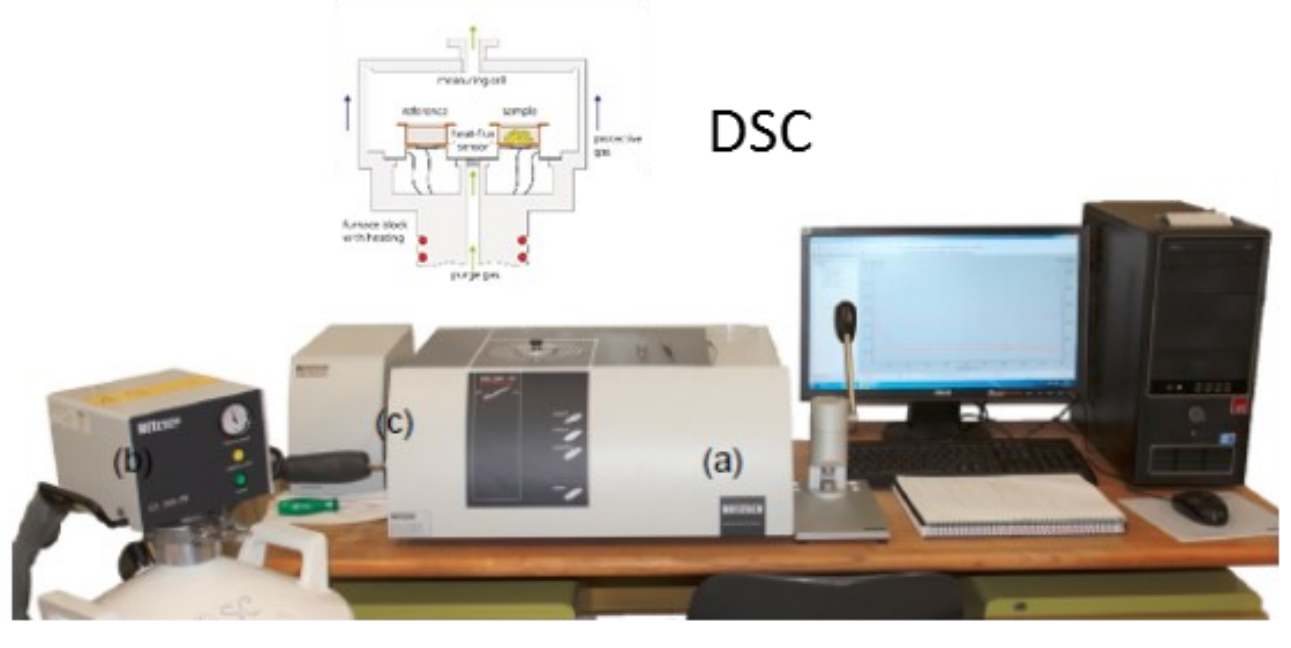
-Materials processing,

-Thermomechanical behavior of functional materials.

Processing Facilities

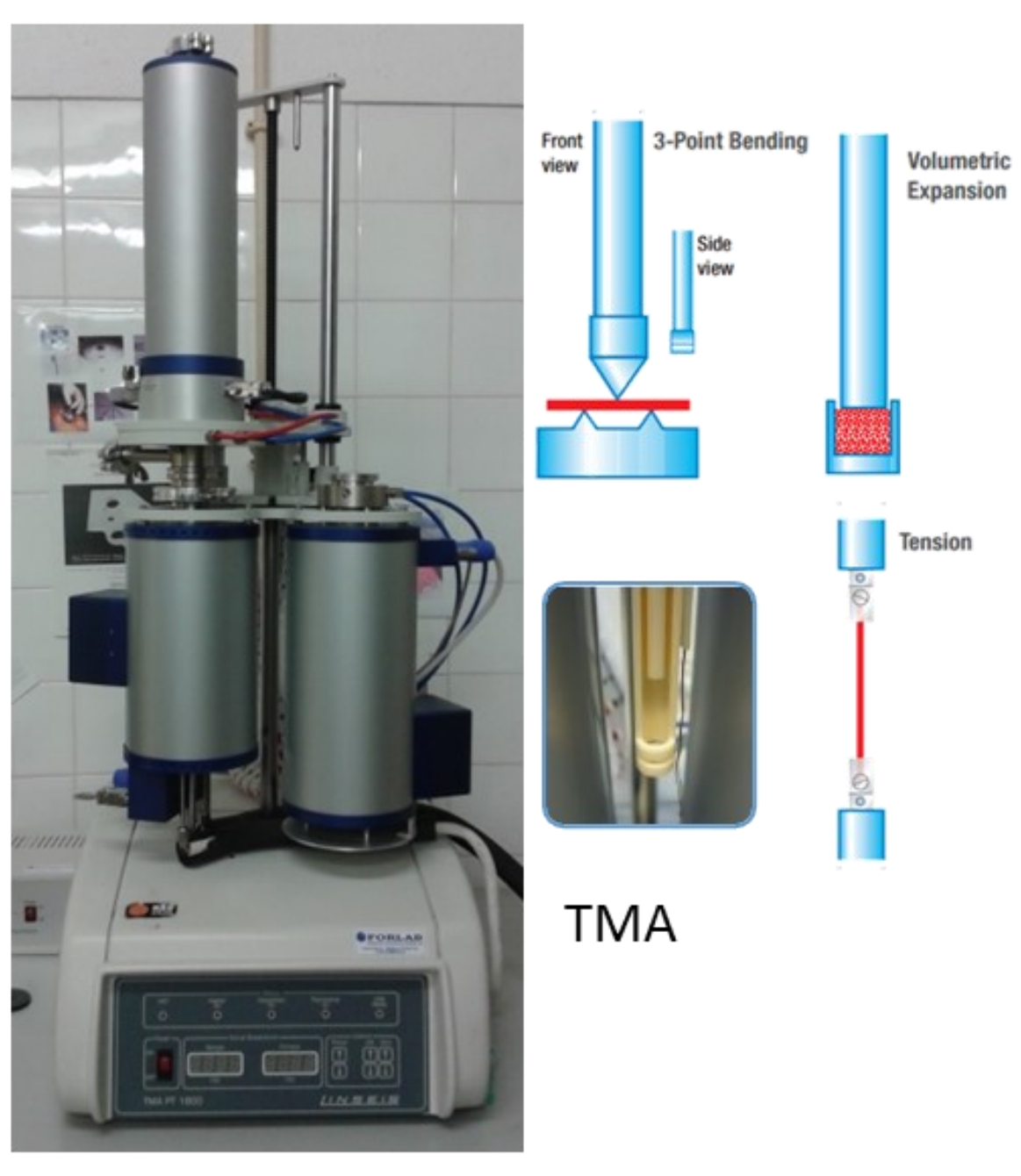


Thermal and mechanical characterization

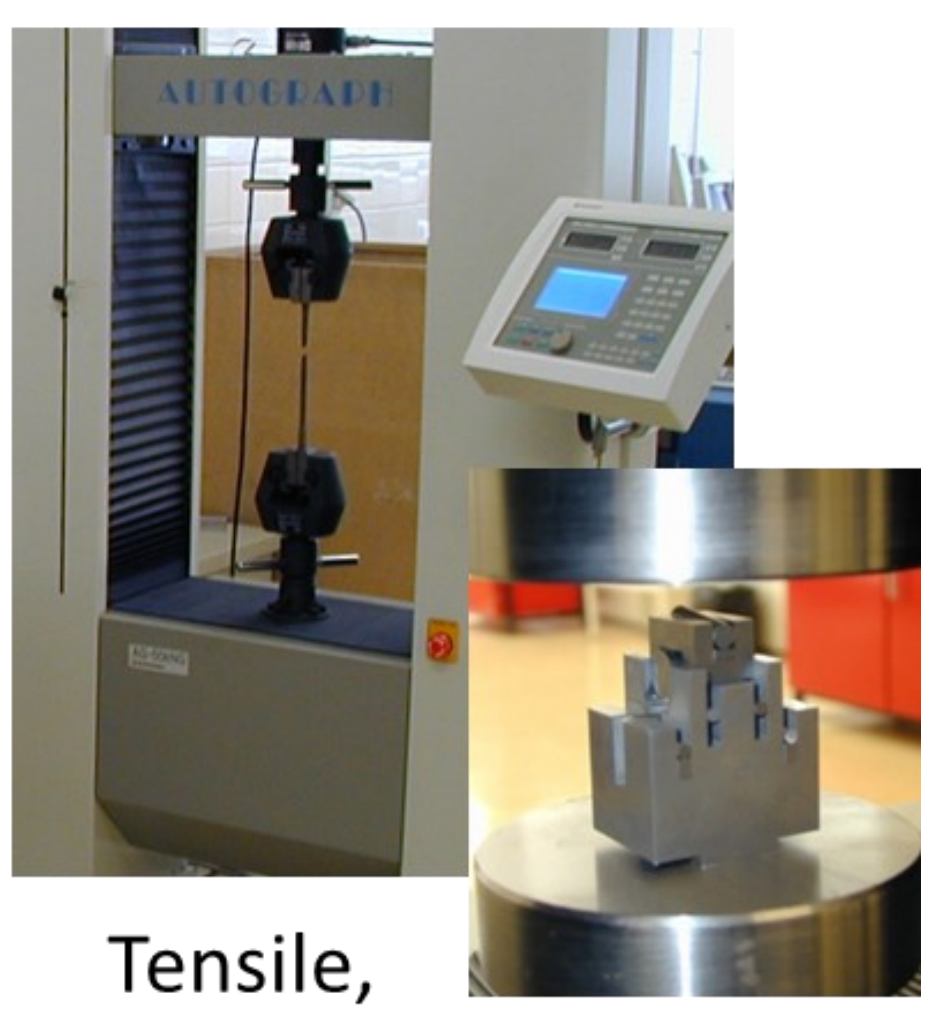


Hardness

DTA / TG



TMA



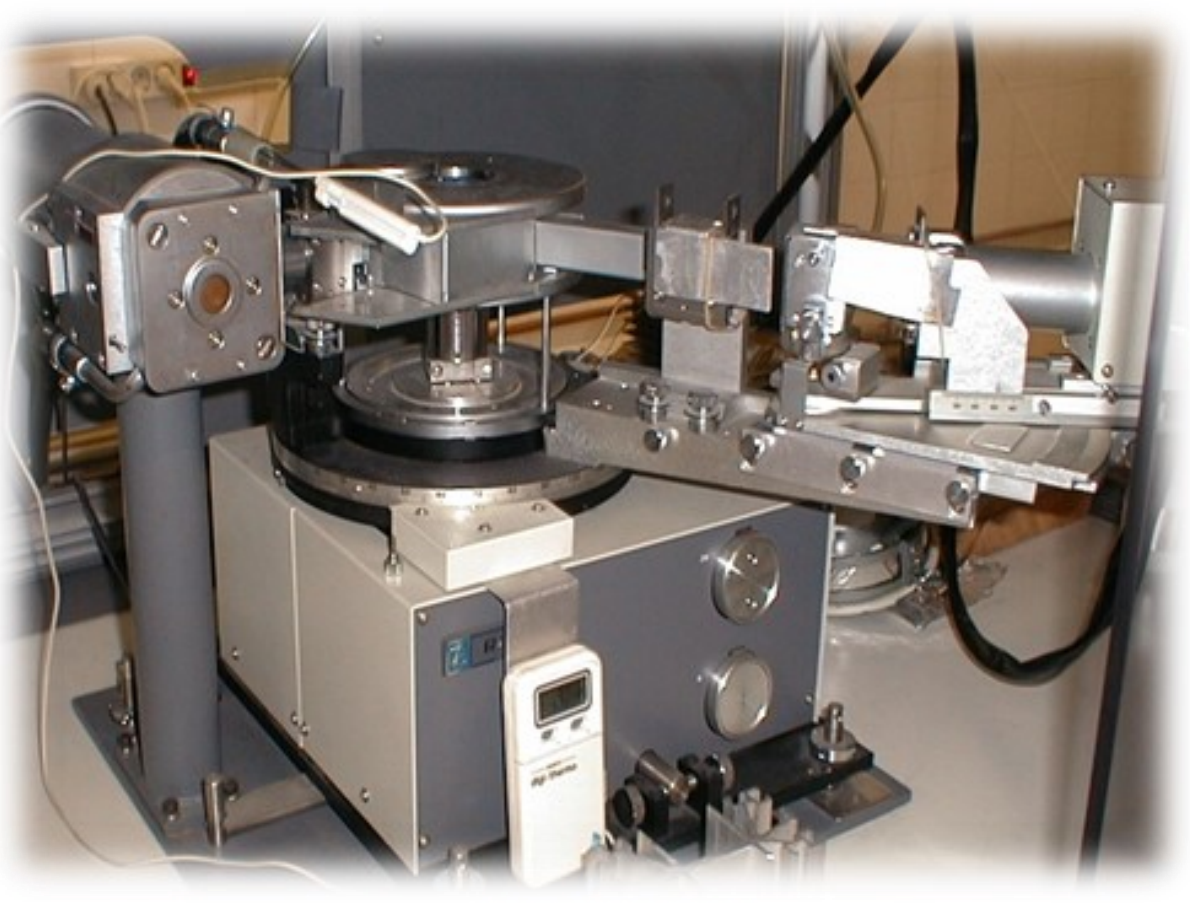
Tensile, Compression and 4-point bending test

Structural and compositional characterization

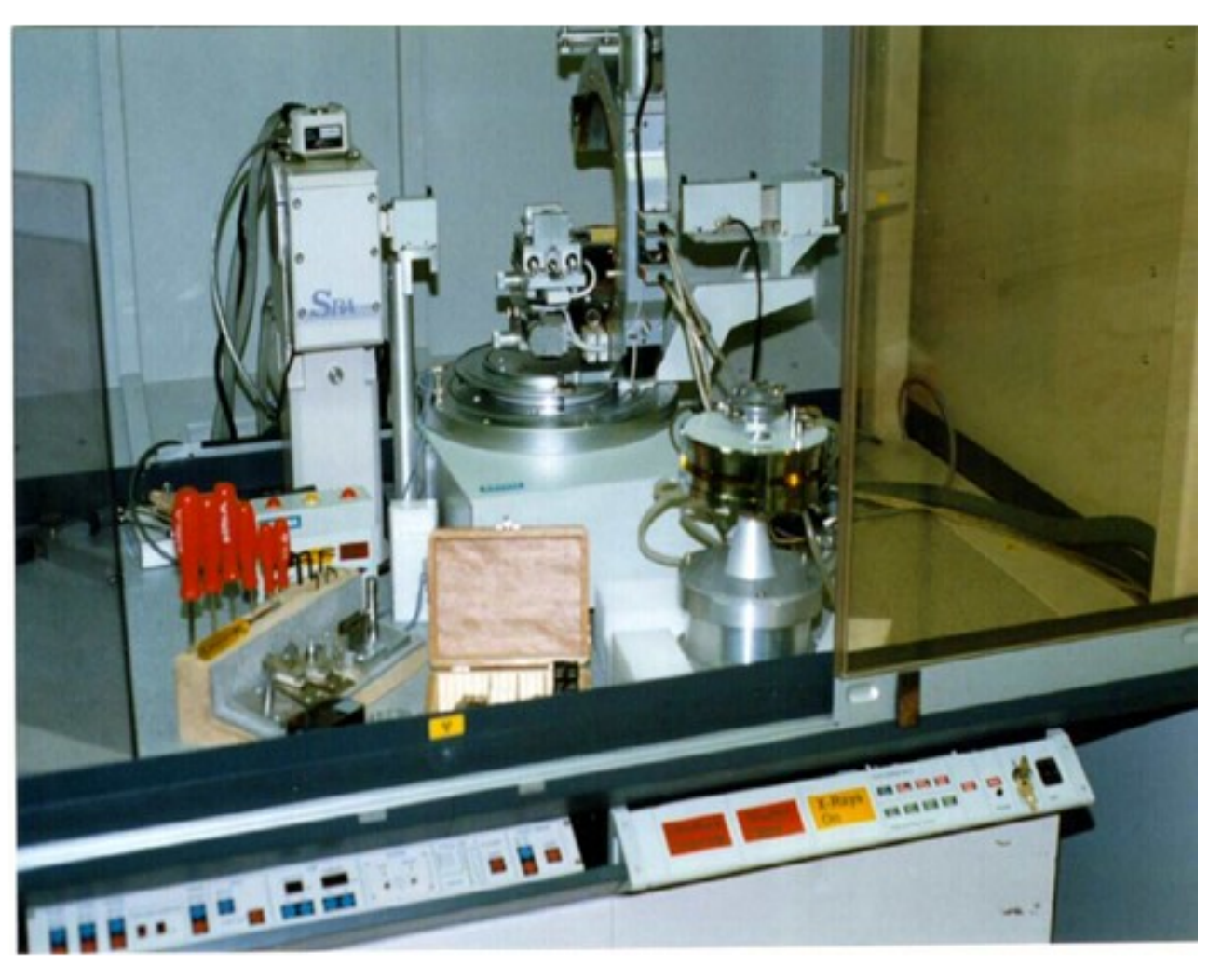
OM
(BF, DF, IC, Pol)

SEM / EDS

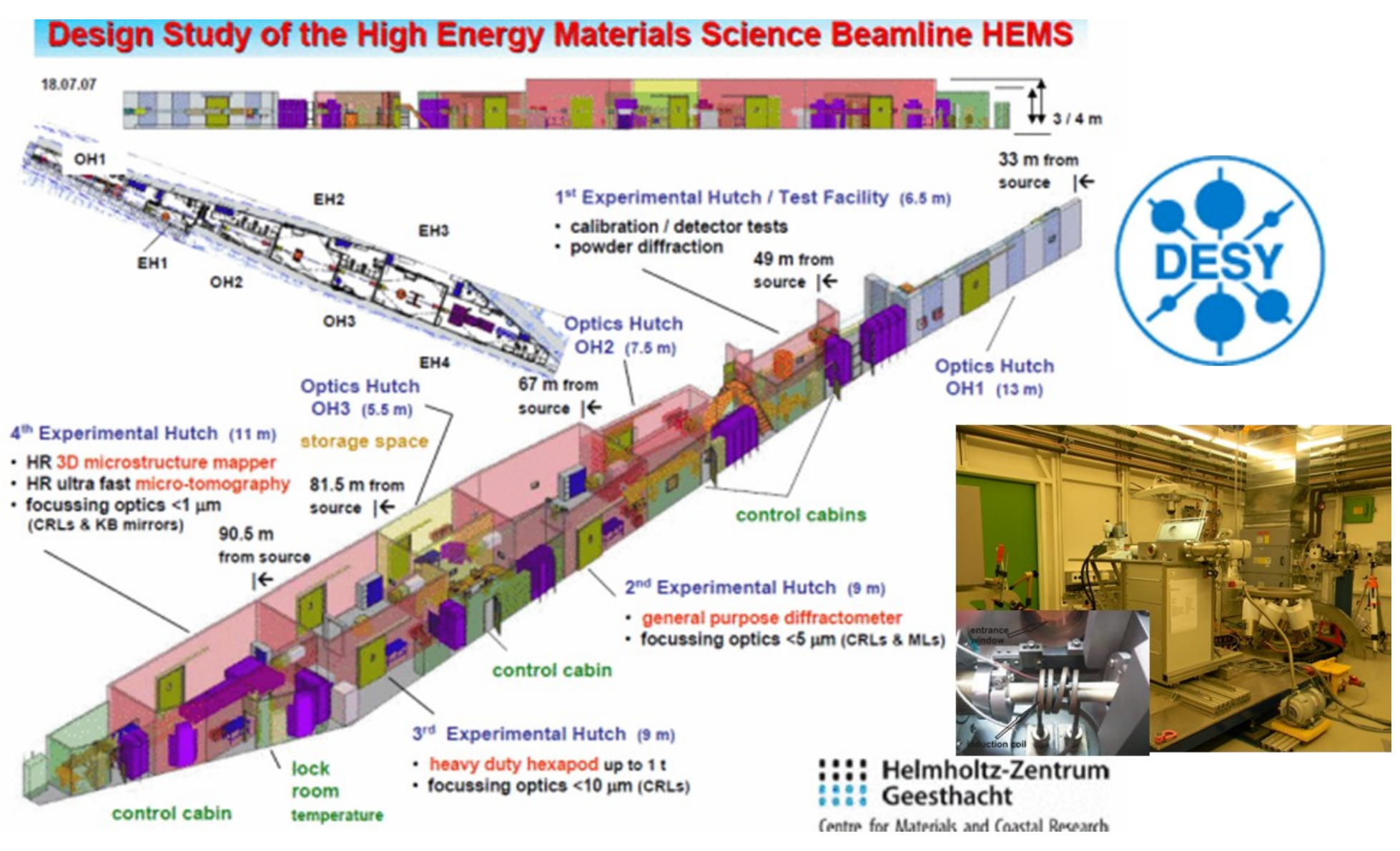
XRF



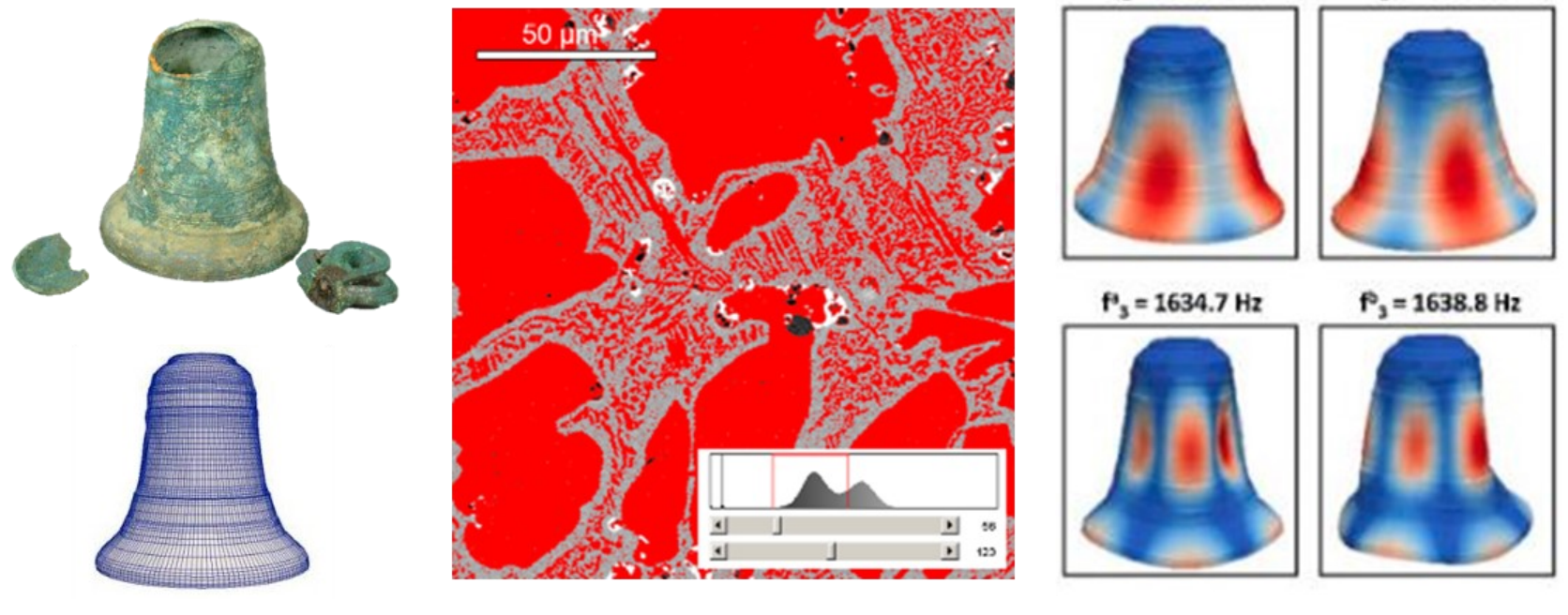
XRD

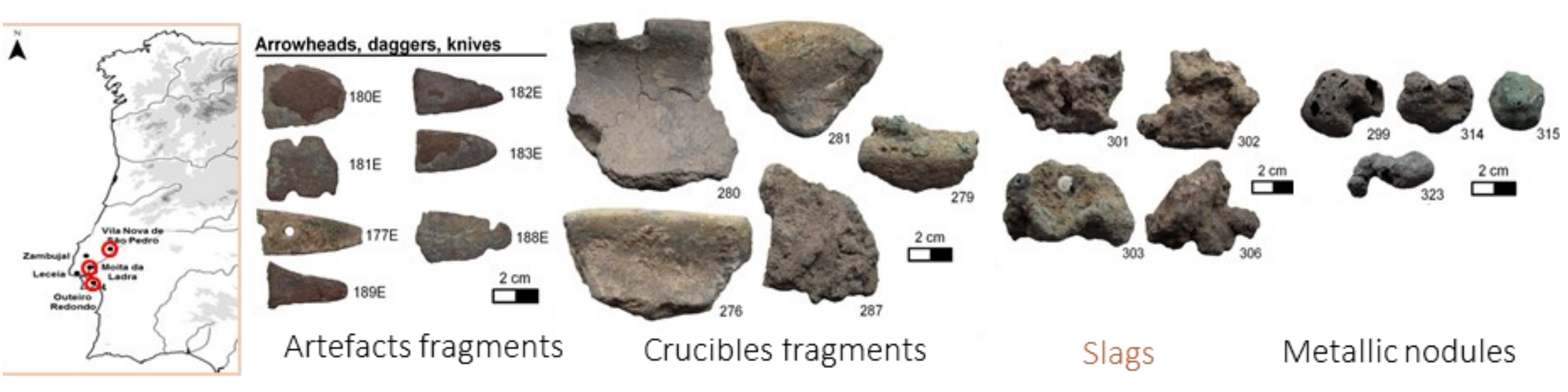


Synchrotron Radiation



From Cultural Heritage Materials



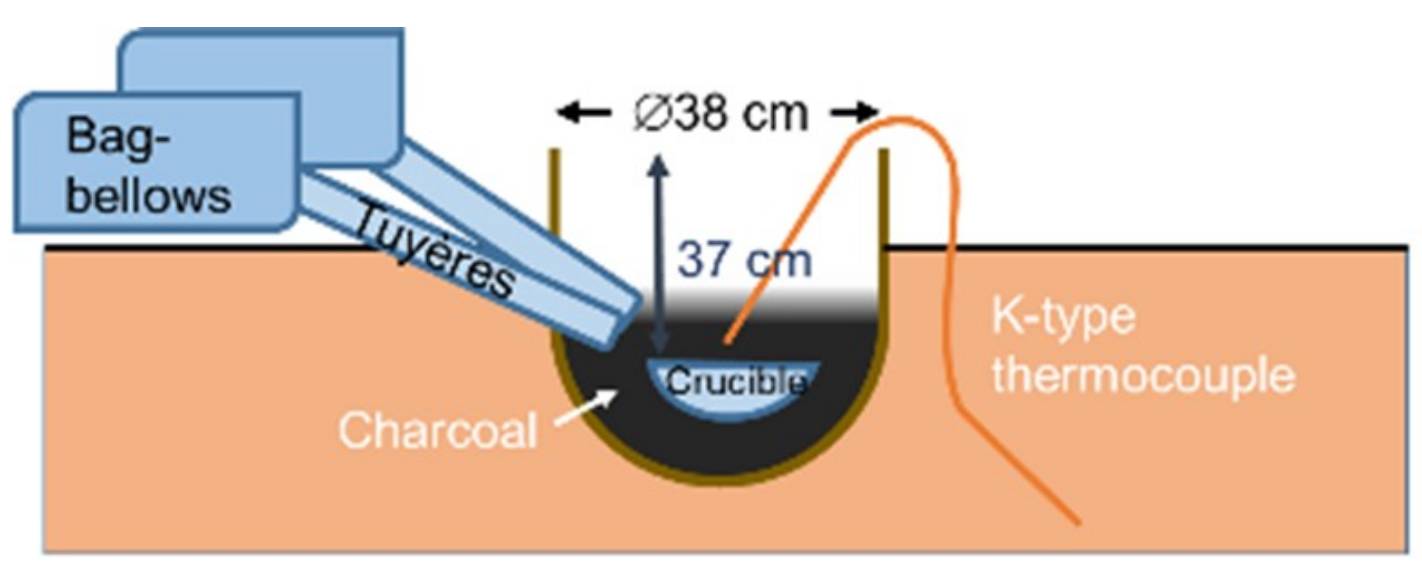


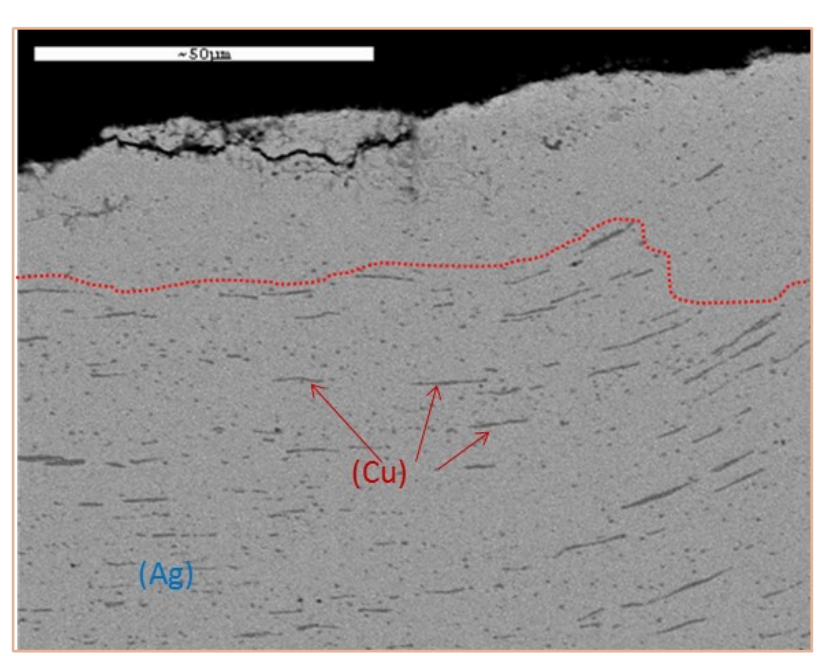
Artefacts fragments

Crucibles fragments

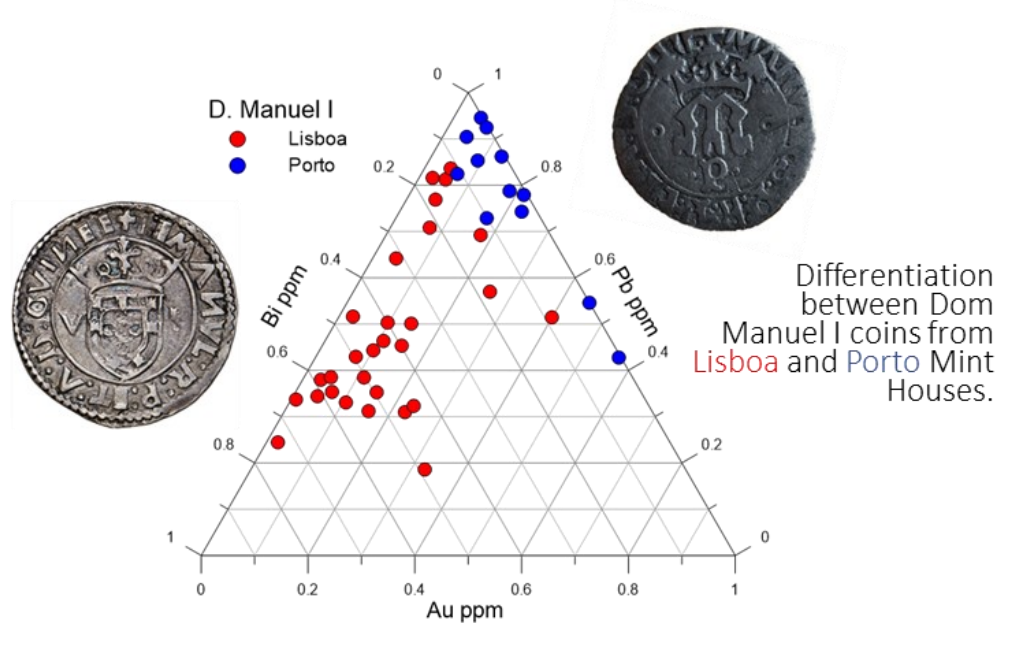
Slags

Metallic nodules

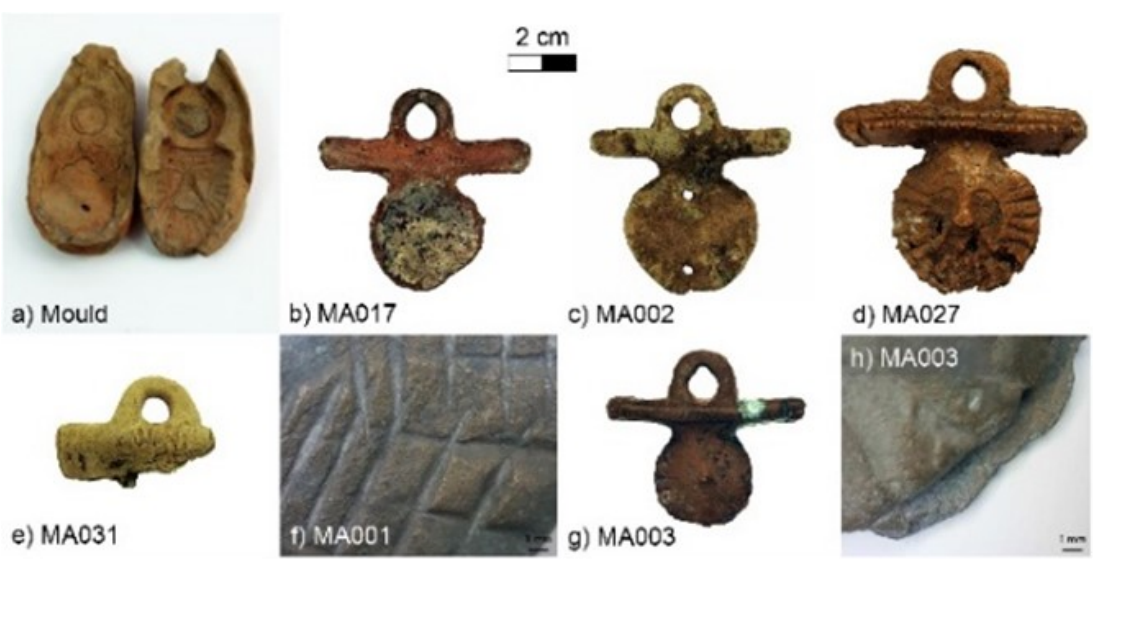




Surface silver enrichment in high silver alloys.

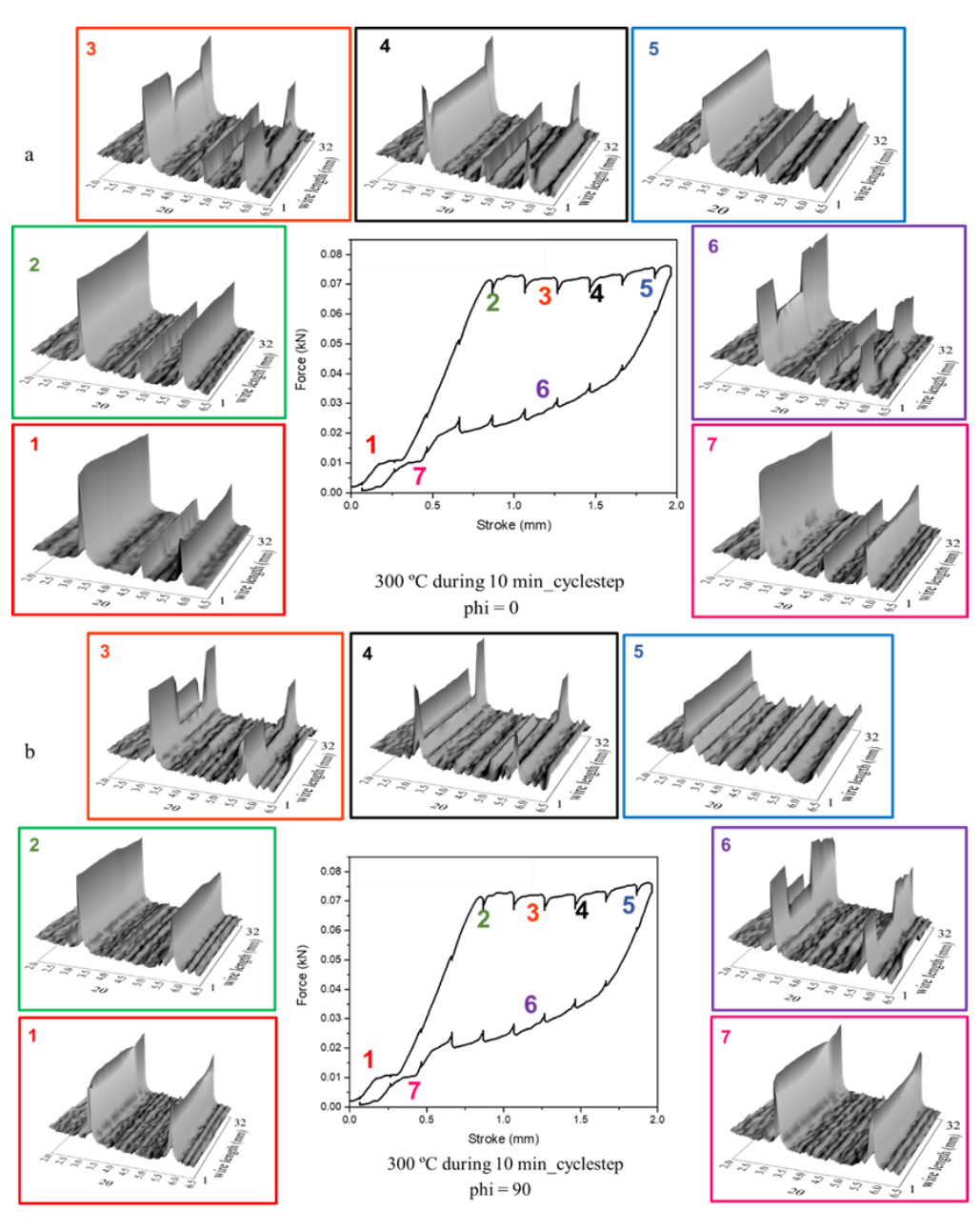


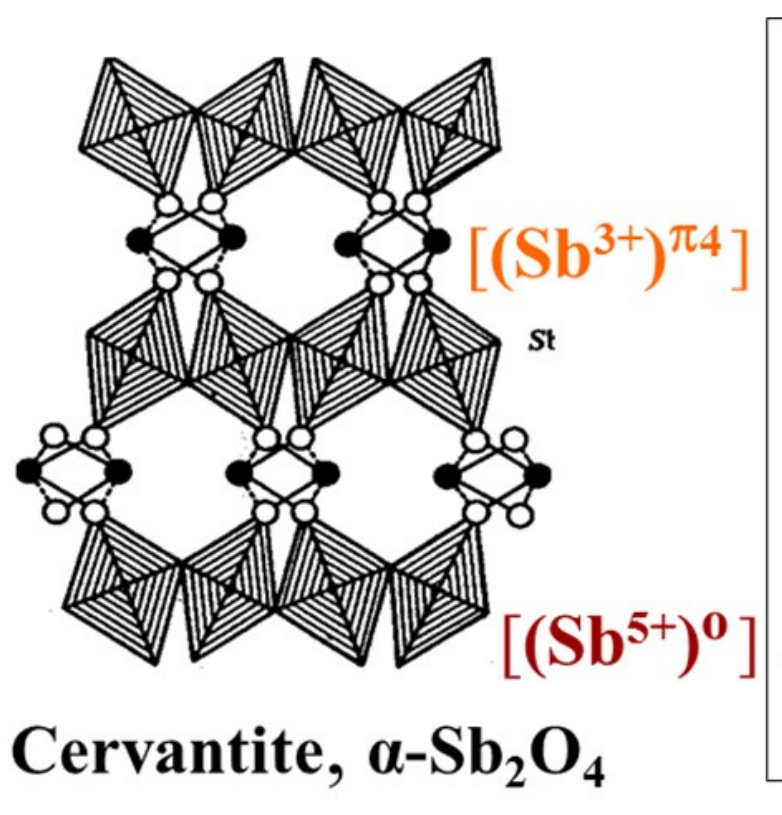
Differentiation between Dom Manuel I coins from Lisboa and Porto Mint Houses.



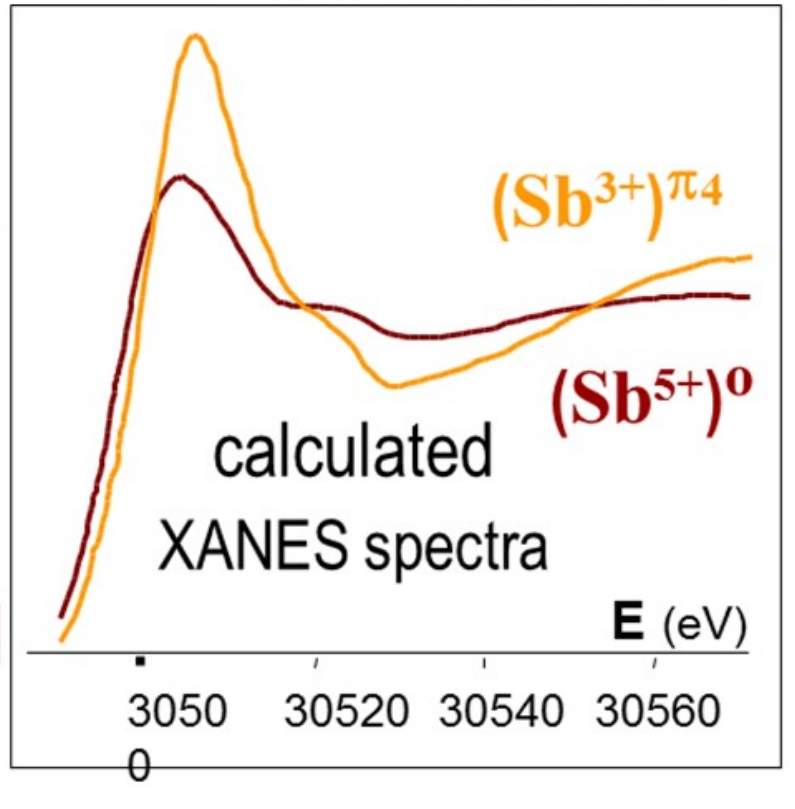
Bivalve clay mould, remnants of solder and casting defects of anthropomorphic attachments.

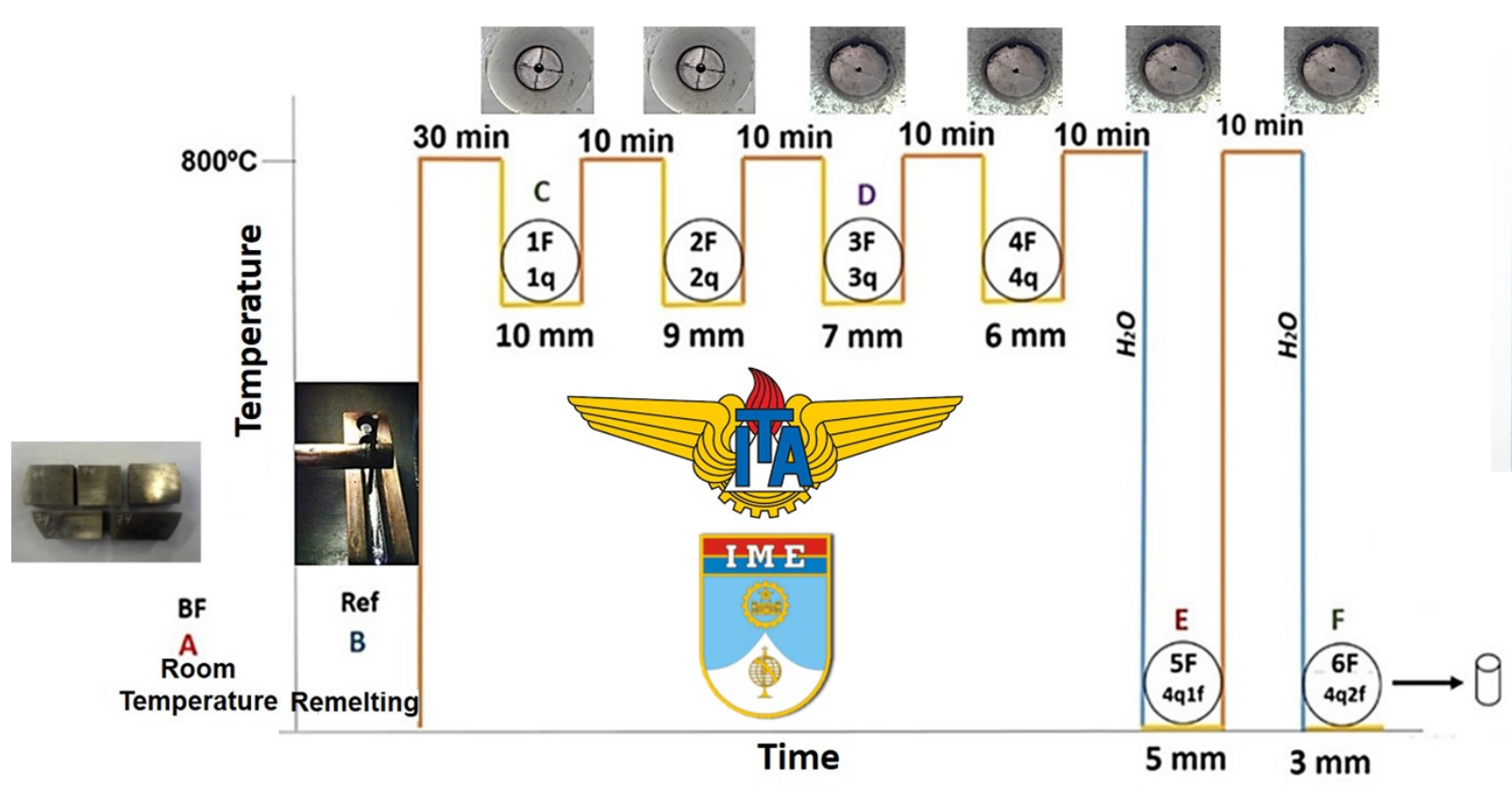
To Smart Materials

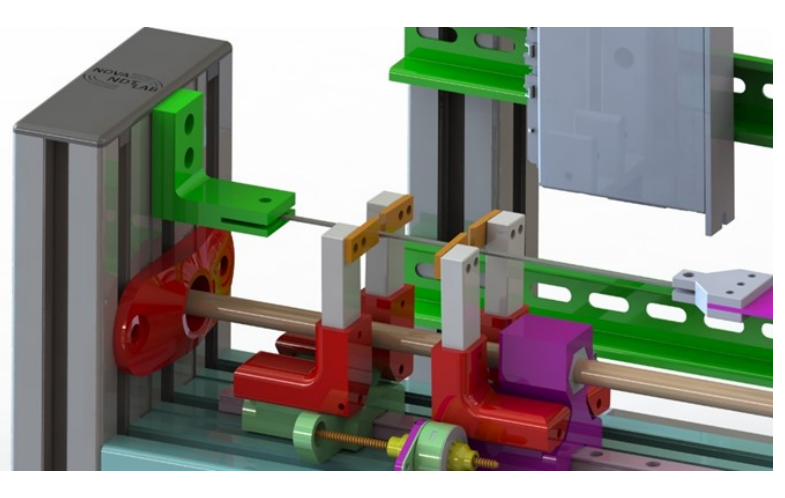


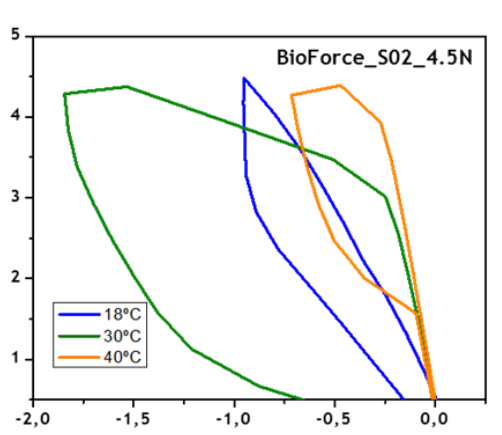


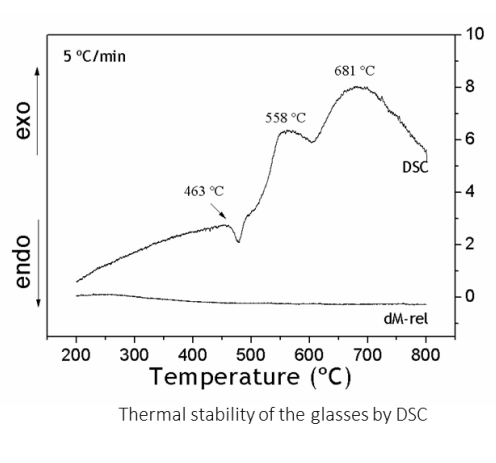
Cervantite, α-Sb_2O_4



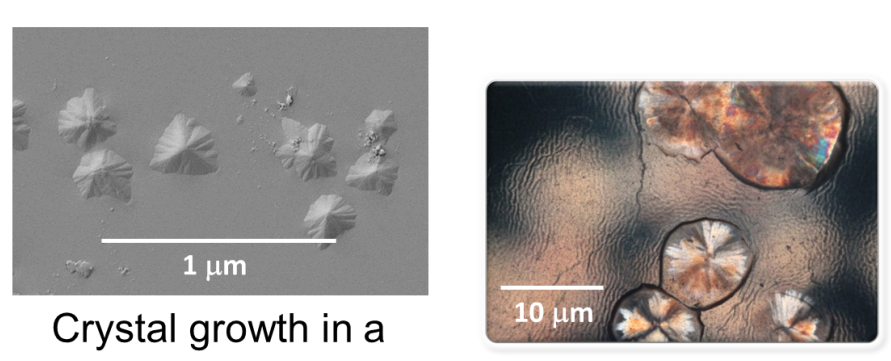








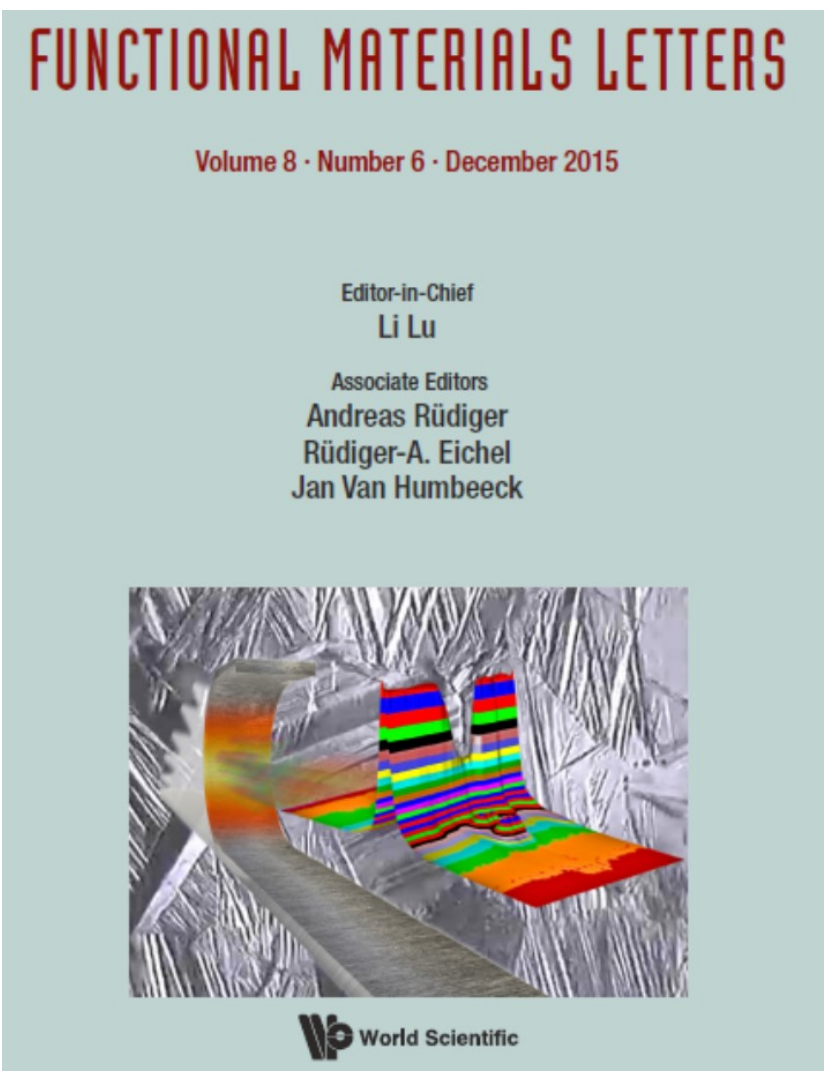
Thermal stability of the glasses by DSC



Crystal growth in a phosphate glass matrix

Proj. ERA-MNT/0001/2010
Proj. M-ERA.NET/0010/2012

Collaboration with INOE/INPLR (Romania) and ARTEOS (Germany)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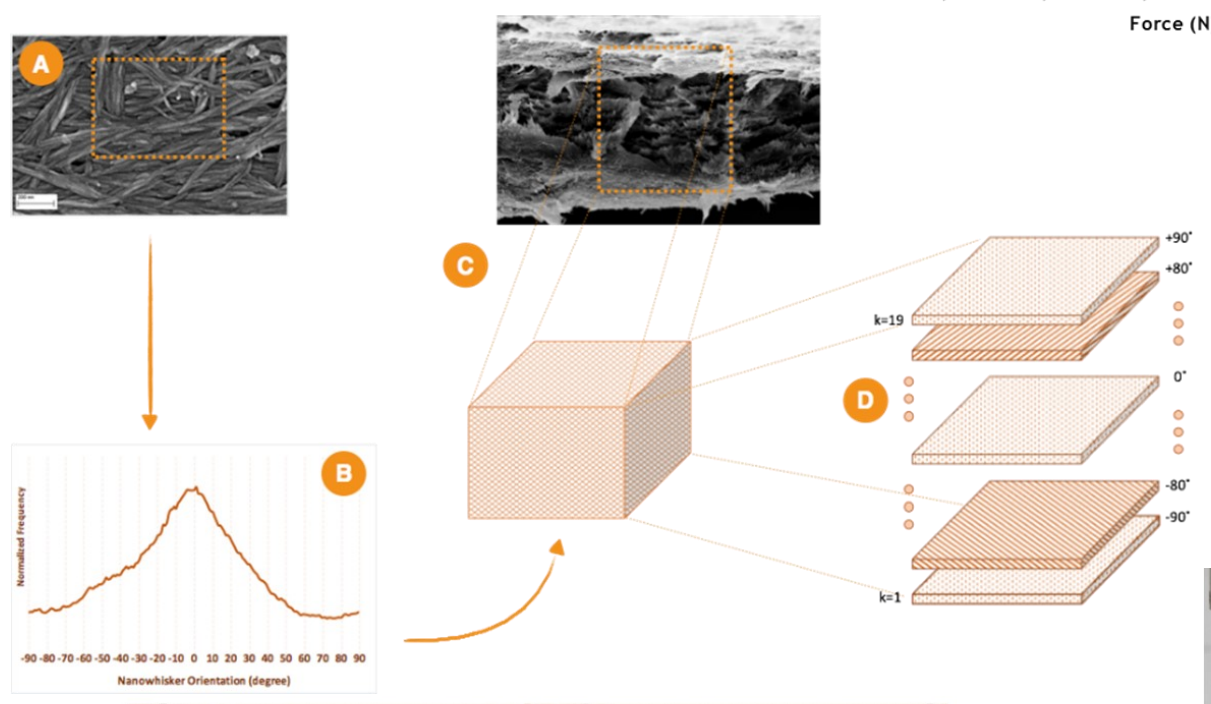

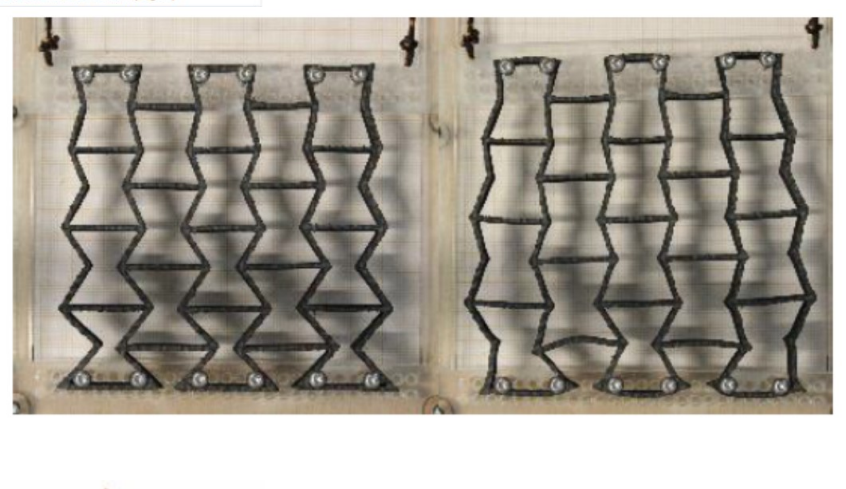

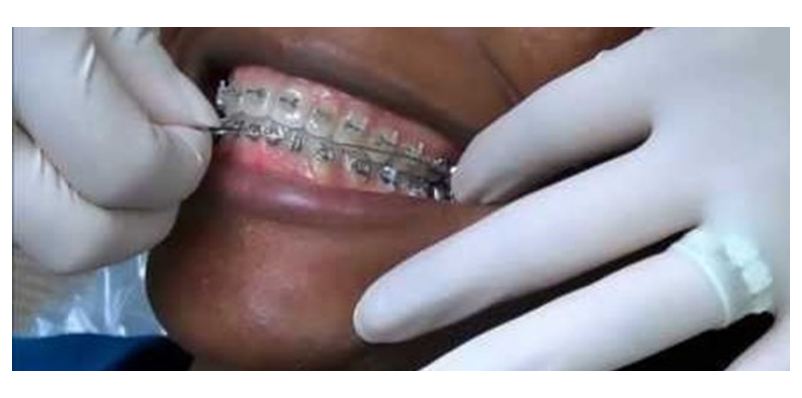

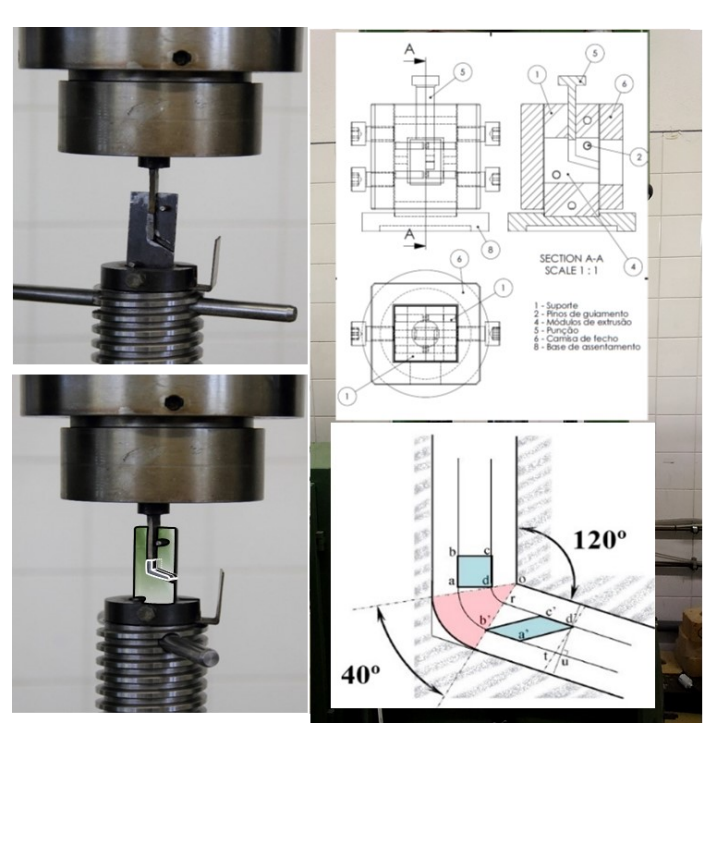

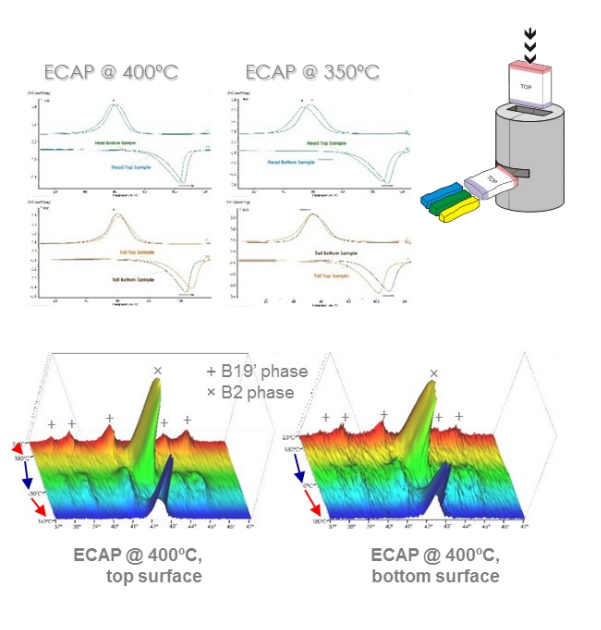

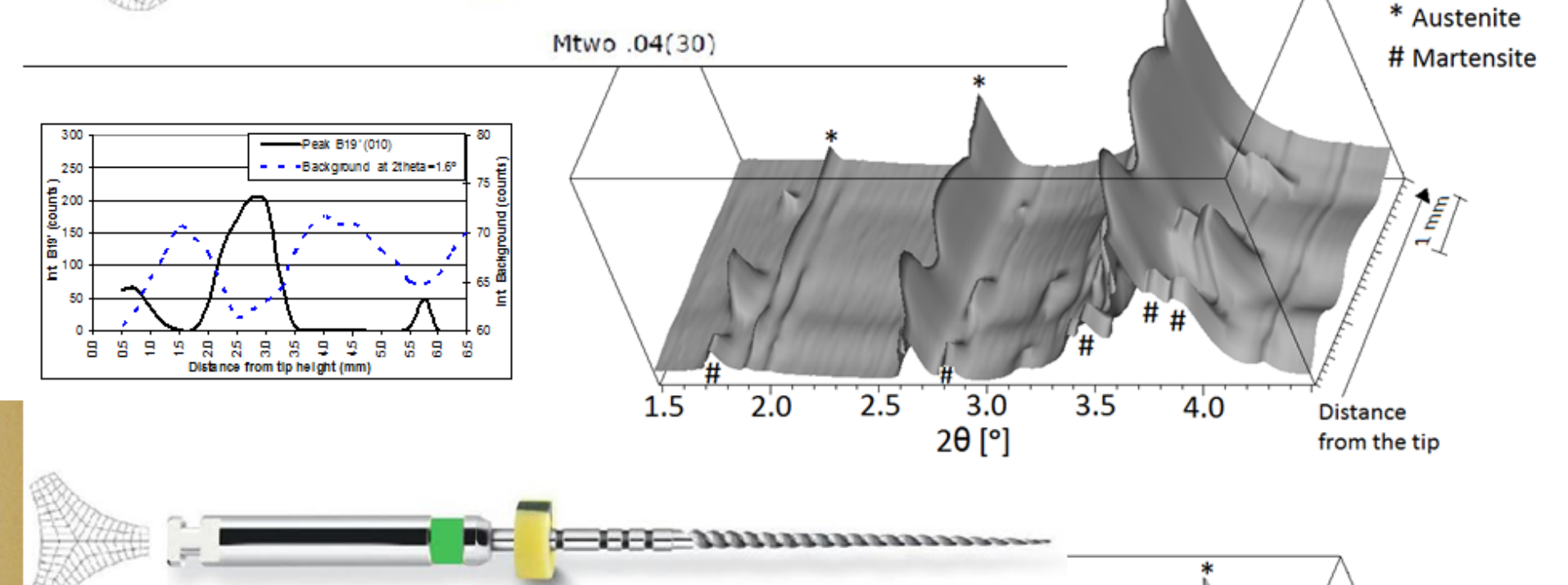

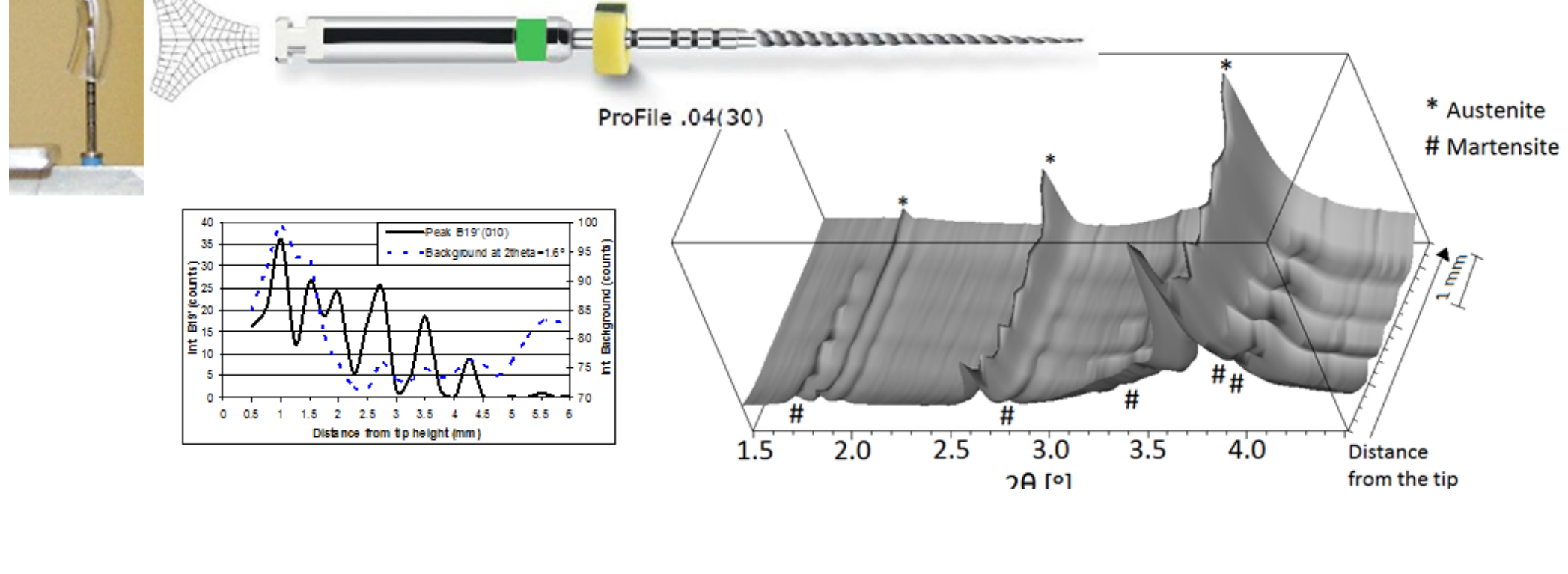

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