

## New Research Centre High PT-MET developed by EU Structural Funds: enhancing cooperation capabilities in KETs

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The High PT-MET Centre was developed during 2010 to 2013 with financial support from EU Structural Funds as a unique Romanian research centre aiming to integrate the whole value chain from non-ferrous resources to advanced materials applications. This approach is based on two modules.

The high pressure module aims to develop new high reactive processes for the intensification of solubilisation methods and obtaining of high purity nanocrystalline materials with controlled composition. The high temperature module use these nanomaterials for preparation of micro/nanostructured coatings from alloys, intermetallics, metal-ceramic and inorganic-organic hybrid composites, by simultaneous or multilayer co-deposition using a

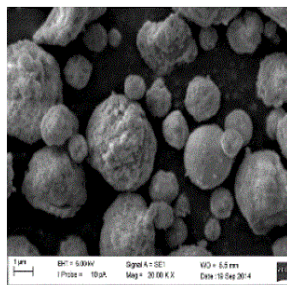


Fig.1 SEM of spray-dried Yttria doped Zirconia nanopowders for Micro-FAST sintering process

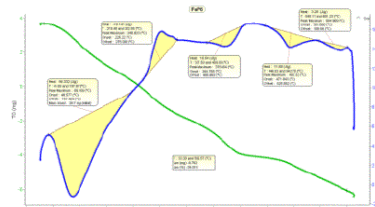


Fig.2 DSC characterization of iron-dendrimer hybrids obtained by high pressure synthesis for nanomedicine

custom-made multiple electron beam/thermal deposition system on metallic, ceramic, textile or polymeric substrates. Some processes (continuous solubilisation, hydrothermal synthesis, e-beam deposition) are conceived at TRL 5 for different applications. Specific certified methods for rapid and accurate materials characterization in solutions, compact or coating state are also available.

### References

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2. L.M. Popescu, R.M. Piticescu, M. Stoiciu, E. Vasile, and R. Trusca, *J. Therm. Anal. Calorim.* **110**, 357 (2014)