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Production and Characterization of Highly Porous Carbides for the SPES Target

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The development of targets for RIBs production is a challenging field for material scientists, who are asked to develop materials possessing tailored properties in order to:

- 1) produce the isotopes requested by the specific experiment
- 2) grant for high release efficiency of the produced isotopes
- 3) long life of the target during bombardment

In addition, the severe operating conditions in terms of high temperature, thermal stresses, nuclear reactions that occur in the material, make the choice of the appropriate material very tricky.

Within the SPES Project the research in this field is very active and the production of lanthanide, actinide and metal transition carbides has been driven towards the development of materials capable of satisfying the above mentioned requests.

Main attention has been directed to the production of carbides with controlled:

- 1) composition and grain size
- 2) specific surface area
- 3) porosity in terms of amount of free volume, available for isotopes effusion.

Different processing routes will be analyzed, so as the their effects on material properties.

Primary author: Dr BIASETTO, Lisa (LNL-INFN)

Co-authors: Dr ANDRIGHETTO, Alberto (LNL-INFN); Dr PRETE, Gianfranco (LNL-INFN); Prof. ZANONATO, Pierluigi (UNIPD); Dr CARTURAN, SaraMaria (LNL-INFN)

Presenter: Dr BIASETTO, Lisa (LNL-INFN)

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