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TOWARDS A REALLY QUANTITATIVE PHASE ANALYSIS THROUGH NEUTRON TOMOGRAPHY: OPEN QUESTIONS STILL TO BE SOLVED.

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Neutron imaging techniques have a huge potential for the characterization of morphological, compositional and microstructural properties of materials. The possibility to apply Energy Selective Neutron imaging is an added value opening enormous possibilities in the field of metallurgy both for the characterization of industrial products and to gain information on historical artifacts. In spite of an excellent development of the technique, some problems related to data treatment and to neutron monochromatic beam generation still remain.

Concerning white beam imaging they are:

- the normalization of the tomographic data at the end of the processing performed using commercial software that is not clearly described and is scaled in an undetermined way with respect to the expected attenuation coefficient;
- the correct determination of the beam hardening parameters;
- the blurring effect in the voxels during the laminographic reconstructions.

Concerning energy selective imaging the main problem is related to the determination of the energy distribution and resolution into the field of view and to the methods to obtain a reliable map of it and how to deal with it during the tomographic reconstruction.

This abstract aims to present an overview of this open question with the goal to rise discussion hoping in the creation of a working group devoted to deal with these topics.

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