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XCT - from Synchrotron to Desktop Applications

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X-ray Computed Tomography (XCT) is a nondestructive technique to reconstruct and visualize inner features within solid objects as digital informations. An XCT image is typically called a slice, as it corresponds to what the object being scanned would look like if it were sliced open along the plane transverse to the rotation axis. Actually, the best resolution achieved is through X-ray beams by Synchrotron Radiation Laboratories (SRL); however, the high quality and performing SRL have restricted access to exper- imental campaigns because of a few and highly expensive plants worldwide-dislocated, friendly-available, busy beamlines with poor duty cycles and dedicated instrumentation managed by specialists not always available in the research groups. These are part of the motivations inducing people towards X-ray sources suitable for table-top experiments. By this reason, while SRL-based μXCT combines sub-micrometer resolution with a high signal-to-noise ratio (contrast), recent advances in desktop μXCT devices have achieved comparable results with benefits in availability and user-friendliness.
In this work, we will shown our significant results obtained in XLab Frascati (INFN- LNF) through our new μXCT facility in comparison with several groups involved in μXCT desktop R&D and in SRL facilities.
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