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[332] High Temperature Superconducting Undulator Development at PSI/CHART

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Short period undulators are the key components of future compact accelerator-based sources of X-rays. The in-vacuum and cryogenic permanent magnet technology and electromagnetic low-temperature superconducting undulators are state of the art. In this talk, we present an alternative approach based on bulk high-temperature superconductors, which combines the advantages of an electromagnetic undulator with the absence of complex winding. The design details and the first experimental results are presented. The project status is reported together with preliminary concepts for the prototype on the tomography microscopy beamline, I-TOMCAT, for the SLS 2.0 project. Finally, we discuss possible applications of this technology in FELs and undulator driven polarized positron sources for linear colliders.

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