

SURFACE INVESTIGATION OF SAMPLES EXTRACTED FROM PROTOTYPE CAVITIES FOR EUROPEAN XFEL

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Abstract

Few cavities of the 4th and 6th cavity generation treated accordingly the XFEL recipe have shown performance of ca. 15 MV/m caused by thermal break down without field emission. Effort to post purify some cavities with titanium, that was successfully applied for FLASH cavities, did not improve the performance. The T-map analysis detected the quench areas mainly close to the equator. Optical control by high resolution camera and non-destructive X-Ray radiography have been applied and allowed to monitor the defects in some cases with good correlation to T-map observation. In order to get more detailed information of defects some samples have been extracted from cavity and investigated by light microscope, SEM, EDX and Auger spectroscopy. The detected distinctions are discussed

**CONTRIBUTION NOT
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