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Corrosion studies of MAX IV storage rings' vacuum components

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MAX IV is in operation since 2015. The vacuum system is based on copper, water cooled vacuum chambers and lumped absorbers. A study was carried out to analyse the corrosion level of the water cooling channels. The aim was to determine the root causes and the possible impact on vacuum system operation. The focus was on finding pitting corrosion, since it is the most critical for creating cracks through the thickness of the chambers' walls and potentially causing leaks. The study is important in view of MAX IV 3 GeV storage ring upgrade project - MAX 4U - under development since 2024. There, one of possible scenarios is to reuse and adapt the geometry of the existing vacuum system to a new lattice, therefore ensuring its longer lifespan is crucial.

Footnotes

Funding Agency

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