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Optimisation of the stem cooling design of the normally conducting Myrrha-CH structures using the example of CH 3

Tuesday, 9 May 2023 16:30 (2 hours)

The MYRRHA project (Multi-purpose hYbrid Re-search Reactor for High-tech Applications) is a planned accelerator-driven system (ADS) that will be realised at Mol in Belgium and will demonstrate the feasibility of transmutation of radioactive waste on an industrial scale.
The planned accelerator, which is to provide the 600 MeV proton beam, consists of a normal-conducting 17 MeV injector that supplies a superconducting LINAC. In addition to a 4-rod RFQ and two QWR rebunch-ers, 17 CH structures are planned in the injector, 15 of which will be used for acceleration and 2 as rebunchers. Now that the construction of the first two CH structures has been completed and they have been tested with per-formance, the next cavities are being prepared for con-struction.
Since the next cavities are operated with more power than CH1 and CH2 due to the higher gap voltages required, the cooling of the stems plays a decisive role for reliable operation due to the required cw operation. For this purpose, an insert was developed in several iterative steps that significantly lowers the maximum temperature on the stems.

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Footnotes

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Yes

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