



Contribution ID: 1573 Contribution code: WEPM102

Type: **Poster Presentation**

## **Thermal and mechanical analyses on a vacuum chamber in a compact superconducting undulator with HTS tapes**

*Wednesday, 10 May 2023 16:30 (2 hours)*

Superconducting (SC) undulators composed of high-temperature superconducting (HTS) tapes, which can be applied to compact light sources such as a table-top free-electron laser, are a part of research and development projects at Karlsruhe Institute of Technology (KIT). In order to minimize the beam heat loads in a cryostat including the compact SC planar undulator, a vacuum chamber (liner) positioned in the undulator gap is considered. In this study, we discuss the preliminary cryostat design based on a simple cooling concept with a cryocooler and report thermal and mechanical simulation results with the liner at cryogenic temperature.

### **Funding Agency**

H.J.C. and B.K. acknowledge the support by the German Federal Ministry of Education and Research (BMBF) ErUM-Pro project HTSSCU (FKZ 05K19VK1).

### **Footnotes**

### **I have read and accept the Privacy Policy Statement**

Yes

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**Session Classification:** Wednesday Poster Session

**Track Classification:** MC7: Accelerator Technology and Sustainability: MC7.T15: Undulators and Wigglers