Contribution ID: **27** Contribution code: **T22** Type: **not specified**

A new laser-based monitoring method for the cryomodule components alignment in CSNS II

Thursday 10 October 2024 09:25 (25 minutes)

Alignment of superconducting cavities is a critical concern for the China Spallation Neutron Source Phase II (CSNS II) linac. To measure cavity displacement during the cooling process to liquid helium temperature, a new laser-based Poisson Spot Monitor (PSM) system was introduced. This system utilizes the diffraction spot captured on a CMOS camera when a parallel laser beam passes through a spherical target to track cavity positions. The Poisson spot center coordinates are determined through image processing. In the initial stages, we monitored the position changes of the double-spoke superconducting cavity prototype during cooling and reheating, comparing the results with those from micro-telescope measurements, which yielded positive outcomes.

Author: HE, Zhenqiang (Institute of High Energy Physics, Chinese Academy of Sciences (IHEP CAS))

Co-authors: WANG, Tong (Institute of High Energy Physics, Chinese Academy of Sciences (IHEP CAS)); WANG, Xiaolong (Institute of High Energy Physics, Chinese Academy of Sciences (IHEP CAS))

Presenter: HE, Zhenqiang (Institute of High Energy Physics, Chinese Academy of Sciences (IHEP CAS))

Session Classification: Tools & Monitoring I