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Design of an intelligent inspection system for particle accelerator facilities

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Aiming at the limitations of the traditional manual inspection method for particle accelerator facilities, an intelligent inspection system for particle accelerator facilities based on multi-modal sensors and artificial intelligence technology is provided. Multi-modal sensors can collect various types of data from the accelerator facilities, such as temperature, audio, images, and water leakage information, which provides comprehensive information for a thorough understanding of the equipment status. Artificial intelligence technology is capable of conducting in-depth analysis of massive amounts of data, uncovering fault patterns and rules. Through technologies such as fault modeling and data analysis, it can achieve early warning and diagnosis of faults. The intelligent inspection system for particle accelerator facilities effectively addresses the limitations of traditional inspection methods. It enables real-time monitoring of the accelerator facilities and rapid alarming of abnormalities, significantly improving work efficiency and the operational safety of the equipment. This system provides strong support for the stable operation of particle accelerator facilities.

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Footnotes

Author: HE, Yongcheng (Institute of High Energy Physics)

Co-authors: XUE, Kang Jia (Institute of High Energy Physics); WANG, Lin (Institute of High Energy Physics); LI, Mingtao (Institute of High Energy Physics); ZHU, Peng (Institute of High Energy Physics); HUANG, Weiling (Institute of High Energy Physics); LU, Xiaohan (Institute of High Energy Physics); WU, Xuan (Institute of High Energy Physics); ZHANG, Yuliang (Institute of High Energy Physics)

Presenter: ZHANG, Yuliang (Institute of High Energy Physics)

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