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The Introduction of 2K Superfluid Helium Cryogenic Test System for PAPS

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Platform of Advanced Photon Source Technology R&D (PAPS) in the Institute of High Energy Physics (IHEP) is a finished project, which can provide a comprehensive research and testing platform for the particle accelerator, X-ray detection and optics. As one of the important parts of the platform, 2K superfluid helium cryogenic test system for the superconducting cavities is composed of three test stations, beam test station for 650MHz superconducting cavity, vertical and horizontal test station for many types superconducting cavity. The total capacity of the cryogenic system can reach 2.5KW@4K and 300W@2K. The vertical test stand for the superconducting cavities is composed of three big vertical test cryostats with 2 different inner diameters, which can provide 4.5K liquid helium, 2K superfluid helium and the lowest 1.5K environments according to the cavities test requirements. The horizontal test stand for the superconducting cavities is composed of valve box and cryomodule, which can meet several different type cavities test, such as 1.3GHz 9cell, Spoke etc. Since the 2K superfluid helium cryogenic test system has been completed, hundreds of superconducting cavities have been finished vertical and horizontal test, the types of cavity contain 1.3GHz 9cell and single cell, 650MHz 2cell and single cell, double spoke, etc.

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