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## **Tue-Af-Po2.23-11 [98]: Experimental research on conduction cooling of superconducting induction heating magnet**

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Induction heating is essentially the use of electromagnetic induction in the conductor of eddy current heating to achieve the purpose of heating the workpiece, with fast, clean, convenient for surface and local heating, and in most cases energy-saving advantages. Compared with the traditional AC induction heating process, the superconducting DC induction heating device uses superconducting magnet instead of traditional copper cable magnet to produce background magnetic field in the iron core. It has obvious advantages in heating depth and heating efficiency.

In this paper, we carried out a series of cooling experiments for induction heating magnet with conductive cooling mode. The optimal cooling structure is determined by experiments on various cooling structures. Finally, relevant experiments are carried out on a formal induction heating magnet. Experiments show that the optimized conductive cooling structure can effectively refrigerate the magnet and maintain thermal stability under the condition of long-term operation of the magnet

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