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Design of a Medium Temperature Resistance Oven for ECR Ion Sources at Institute of Modern Physics

With the successful development of inductive oven in 2019, there are three kinds of metal ovens at Institute of Modern Physics (IMP) now: low temperature oven, inductive high temperature oven and traditional mini-oven. To expand the range of temperature coverage, a new resistive medium temperature oven has been proposed in 2022 and fabricated in 2023. It is designed for the optimal working range of 700- 1600°C, the main purpose is to produce refractory metal vapor with medium service temperature, such as Fe, Ni, Cr, Mn, etc. A special feature of this oven is the added gap between the ceramic crucible and the heating coil to avoid compatibility problems at high temperature. The off-line test result shows that this oven can reach up to about 1600 °C at 0.5 kW of DC power. In this contribution, we will present the structure of this medium temperature oven and discuss the testing results as well.

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Yes

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