

# ***Heat Transfer Analyses and Experimental Study of a Gas-Gap Heat Switch for a Sorption Cooler***

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The gas-gap heat switch (GGHS) is a critical component for a sorption cooler (SC). In order to explore the characteristics of the thermal performance of the GGHS in a wider temperature region (4-300 K) and verify the gap structure by a simpler test at the room temperature, a thermal model evaluating the heat flux through the GGHS for a wider temperature region was established. To verify this model, a GGHS was tested with 4He as the working medium at 10 K and 295 K. The experimental results are in agreement with the theoretical data, and the thermal performances at 10 K and 295 K are compared in this paper. This model can help to assess the heat load of the SC in different working conditions and to detect the gap structure.