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## **C1Po1B-09: Simulation and experimental of phase shifter in high frequency pulse tube cryocooler**

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The development of the 3rd generation infrared technology enables the pulse tube cryocoolers to become lighter, smaller and more efficient. The phase shifter has a significant effect on the performance of the cryocooler. Moreover, as the weight of the compressor and the cold finger decreases, the phase shifter, especially the reservoir increases its weight ratio in the whole pulse tube cryocooler. In this paper, a pulse tube cryocooler model is established to investigate the pressure wave, mass flow and the phase shift between them along the inertance tubes and discuss the possibility of eliminating the reservoir when the cryocooler works at high frequency. The effect of the diameter and length of the inertance tubes and the volume of reservoir are investigated by experiments.

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