
SESSION 9: Reverse Brayton & JT Coolers

Paper 10.1 Wednesday POSTER Session 1:15 to 2:45 PM

Development of a Micro Pulse Tube Cryocooler for HOT Applications

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The significant characteristic of the new-generation IR detectors working at High Operating Temperature (HOT) are small Size, light Weight and low Power (SWaP). To support these needs, a micro pulse tube cryocooler has been developed. It consists of the linear compressor, the cold finger and the phase shifter (Inertance tube). Due to the optimization based on the frequency around 180 Hz and the working temperature around 150 K, the masses of the cryocooler are reduced to around 300 g, including a linear compressor that weighs 160 g. This paper describes the design and development of the miniature pulse tube cryocooler, and introduces the performance tests data in detail.