The Lambda-Point Experiment (LPE) flew on the first USMP-1 (US Microgravity Payload) mission on Space Shuttle Columbia. The launch occurred on Oct 22, 1992. The goal of the experiment was to measure the singularity in the specific heat of helium around the lambda transition at 2.177K and with nanoKelvin resolution. The instrument was developed by Professor J. Lipa and his team at Stanford University under a contract with Ball Aerospace in Colorado. The Jet Propulsion Laboratory (JPL) provided management of the experiment and the cryostat facility. The cryogenic system, functions and performance are described in detail.

Before flight over 100 cryo-servicing operations, covering a 20 month period from the first cool-down, were performed, the cryostat’s performance in space exceeded expectations primarily due to the lower outside shell temperature. The temperature stability of the cryostat was maintained by passive control with a liquid vapor phase separator.

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