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Superfluid transition of helium-4 under heat current and reduced gravity in a low-g simulator YUANMING LIU, MELORA LARSON, ULF ISRAELSSON, *Jet Propulsion Laboratory, California Institute of Technology*. We report our latest measurements on the helium-4 superfluid transition under heat current in a low-gravity simulator. Due to the hydrostatic pressure variation caused by gravity, the superfluid transition temperature (T_λ) changes with position in a liquid helium sample cell. In our low-gravity simulator, gravity and therefore T_λ variation can be substantially reduced by the magnetoresistive force. Our measurements showed that the gravity can be entirely canceled with a field-field gradient of $20.7 T^2/cm$ (or a field of 15.5 Tesla), consistent with theoretic prediction. The measurements also revealed a strong dependence of the boundary resistance between the thermometers and liquid helium on the magnetic field. The resistance increased with an increasing magnetic field.

Prefer Oral Session
 Prefer Poster Session

Yuanming Liu
yliu@squid.jpl.nasa.gov
Jet Propulsion Laboratory

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