

Adiabatic Expansion of ^3He in Superfluid ^4He

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In Cryogenics Vol.96 (2018) pp.83-89 we described a technique which enables continuous cooling in space to subkelvins using two expansion units which operate in counterphase. Each unit needs two external coolers. In the present work attention is paid to the cooling chain between the expansion units and the radiative cooler at about 50 K. It will be shown that only two (and not four) JT coolers are needed. These two JT coolers run continuously, but by using two-way valves they are alternatively switched between the two expansion units. Also no heat switches are needed to thermally connect/disconnect the JT coolers to the expansion cells. This simplifies the system considerably.