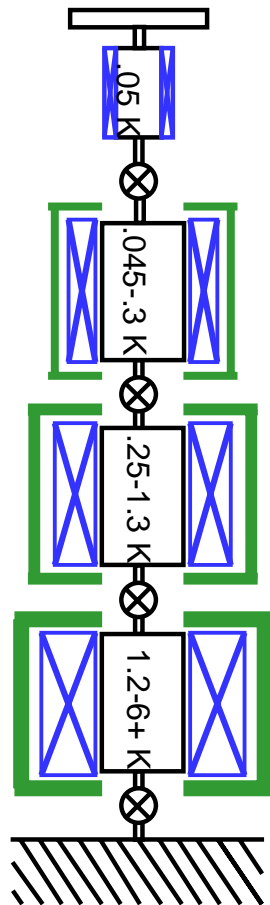




A Compact, Continuous Adiabatic Demagnetization Refrigerator With High Heat Sink Temperature

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Continuous ADR:

- Lowest temperature stage isothermal
- Heat cascaded to higher temperature stages

Performance of 4-Stage CADR

- Continuous cooling at 35-100 mK
- Heat rejection at 4.2 K
- Cooling power :
 $1.5 \mu\text{W} @ 35 \text{ mK} \rightarrow 21 \mu\text{W} @ 100 \text{ mK}$
- High thermodynamic efficiency ($>45\%$)
- 8 μK rms temperature stability at 100 mK
- Total mass $\sim 8 \text{ kg}$

New developments:

- Compact 4th stage operates from $> 5\text{K}$
- All passive gas gap heat switches - eliminates major inefficiency

