Filling Liquid Helium Detectors
(Cu-doped Germanium Detectors and Bolometers)

- **If detector is room-temperature, begin with Step 1.**
- **If detector is already cold, skip to Step 6.**

1. Pump out vacuum jacket on detector until it reaches ~10^{-6} torr.
2. Fill liquid nitrogen reservoir with liquid nitrogen. Wait until gas boil-off has stopped.
3. Fill liquid helium reservoir with liquid nitrogen. Wait until gas boil-off has stopped.
4. Empty both liquid helium and liquid nitrogen reservoirs completely.
5. Refill liquid nitrogen reservoir with liquid nitrogen.

6. On liquid He dewar, open *horizontal vent valve* and vent dewar slowly
7. On liquid He dewar, close *pressure-release vent valve* and remove pressure vent.
8. Connect helium gas tank to *pressure-release vent valve.*
9. Open main valve on helium gas tank.
10. On liquid He tank, open *transfer line valve.*
11. Insert transfer line into liquid helium dewar. Secure knurled knob.
12. Helium gas will begin to flow through transfer line. Open *pressure-release vent valve* to slightly pressurize (<2 psi) helium dewar and initiate liquid helium flow.
13. Close *pressure-release vent valve.*
14. One liquid helium begins to flow, insert transfer line into detector. (If cooling detector from room temperature, insert transfer line before liquid helium begins to flow.)
15. Make note of the time it takes to fill the detector.
16. Once the detector is full, open *horizontal vent valve* on dewar, and vent slowly.
17. Release knurled knob on transfer line and remove CAREFULLY.
18. Close main valve on helium gas tank.
19. Remove connection to helium gas tank.
20. On liquid helium dewar, replace pressure vent and open *pressure-release vent valve.*
21. On liquid helium dewar, close *horizontal vent valve* and *transfer line valve.*
22. Replace top to liquid helium reservoir on detector.
23. Record liquid helium fill in notebook.