## Summary of lecture 16

- We tested the degenerate Fermi gas theory by comparing to data on the heat capacity of a metal (potassium) and of liquid helium-3.
- It works well although there is evidence that the ionic lattice is playing a role in metals and that the ideal gas approximation is rather crude for liquid helium-3.
- Moreover, we saw that helium-3 undergoes a dramatic phase transition at around 3 mK: superfluidity.

• The electrons in our Sun do not form a degenerate Fermi gas. But the Fermi temperature is only a factor 100 "too small" suggesting that more dense stars could have a core containing a degenerate electron gas.....such stars exist and are called "White Dwarves".