[tex28] Determining C_V of condensed matter

The direct measurement of the heat capacity at constant volume C_V for condensed matter is very difficult. Therefore, express C_V in terms of the following quantities, all of which are experimentally more accessible: the heat capacity at constant pressure C_p, the isothermal compressibility κ_T, the mass density ρ, and the sound velocity $c = \sqrt{(\partial p / \partial \rho)_S}$.

Solution: