

## [tex20] Thermodynamics of an ideal paramagnet II

For an ideal paramagnet specified by the equation of state  $M = H/T$  (Curie law) and heat capacity  $C_M = \text{const}$ , find (a) the internal energy  $U(T, H)$ , the entropy  $S(T, H)$ , and the enthalpy  $E(T, H)$ ; (b) the thermodynamic potentials  $A(T, M)$ ,  $G(T, H)$ ; (c) the response functions  $\chi_T$ ,  $\chi_S$ ,  $\alpha_H$ ,  $C_H$ .

**Solution:**