KLASIKOKI

$$Q_1(T) = \int_0^{2\pi}\int_0^{\pi} e^{\frac{\mu H}{k_B T}\cos\theta} \sin\theta \, d\theta \, d\varphi$$

$$\equiv$$

$$\boxed{\frac{4\pi \sinh\left(\frac{\mu H}{k_B T}\right)}{\left(\frac{\mu H}{k_B T}\right)}} \longrightarrow \quad M =$$

$$\chi = \frac{C}{T}$$

$$\bar{\mu}_z \equiv \frac{M_z}{N} = \mu\left[\coth\left(\frac{\mu H}{k_B T}\right) - \frac{1}{\left(\frac{\mu H}{k_B T}\right)}\right]$$

$$\mu L\left(\frac{\mu H}{k_B T}\right) \qquad\qquad L(x) \equiv \coth x - \frac{1}{x}$$

KUANTIKOKI

$$Q_1(T) = \sum_{m=-J}^{m=+J} e^{\frac{g\mu_B H}{k_B T}\cdot m} \qquad\qquad x \equiv \frac{g\mu_B H}{k_B T}\cdot J$$

$$e^{mx/J}$$

$$= \boxed{\frac{\sinh\left\{\left[1+\frac{1}{2J}\right]\cdot x\right\}}{\sinh\left\{\left[\frac{1}{2J}\right]\cdot x\right\}}} \longrightarrow \qquad \chi = \frac{C_J}{T}$$

$$\bar{\mu}_z \equiv \frac{M_z}{N} = N(g\mu_B J)\cdot\left[\left(1+\frac{1}{2J}\right)\coth\left(\left(1+\frac{1}{2J}\right)\cdot x\right) - \frac{1}{2J}\coth\left(\frac{1}{2J}\cdot x\right)\right]$$

$$(g\mu_B J)\, B_J(x) \qquad\qquad B_J(x) = \left(1+\frac{1}{2J}\coth\left(1+\frac{1}{2J}\right)x \ldots\right.$$