and in D the average is over the center-of-mass distribution function $\mathfrak{F}_1(X,V)$ as in Eq. (2.10). The other terms to fourth order have the same structure and differ only in the order of operators.

When we separate the $\alpha=\beta$ term of Eq. (5.1) from the rest of the sum, we obtain

$$\begin{aligned}(\tilde{\gamma}^4\omega_D^{-4}D)a^\dagger aRa^\dagger a[&N(N-1)\langle\sigma_\alpha^\dagger\sigma_\alpha\sigma_\beta^\dagger\sigma_\beta\rangle\\&+N\langle\sigma_\alpha^\dagger\sigma_\alpha\sigma_\alpha^\dagger\sigma_\alpha\rangle]\\=(\tilde{\gamma}^4\omega_D^{-4}D)a^\dagger aRa^\dagger a[&N^2\langle\sigma_\alpha^\dagger\sigma_\alpha\rangle\langle\sigma_\beta^\dagger\sigma_\beta\rangle+N\langle\sigma_\alpha^\dagger\sigma_\alpha\rangle]\\=(\tilde{\gamma}^4\omega_D^{-4}D)a^\dagger aRa^\dagger a[&N^2n_+^2+Nn_+],\end{aligned}\tag{5.2}$$

where we use $\sigma_\alpha^\dagger\sigma_\alpha\sigma_\alpha^\dagger\sigma_\alpha=\sigma_\alpha^\dagger\sigma_\alpha$. The breakup of the term $\langle\sigma_\alpha^\dagger\sigma_\alpha\sigma_\beta^\dagger\sigma_\beta\rangle$ follows from the Bogoliubov[2] expansion procedure for the kinetic equation where $\rho_2(\alpha,\beta)=\rho_1(\alpha)\rho_1(\beta)$. In a laser N is large so the second term in square brackets is usually negligible compared with the first term. This suggests that β^2 is the correct expansion parameter.

The $\tilde{\gamma}^4N^2$ terms arise when two different particles within a wavelength of light apart exchange a virtual photon in a time small compared with ω_D^{-1} which is the time an atom with the average thermal velocity takes to move a distance equal to a wavelength of light. The $\tilde{\gamma}^4N$ terms represent a second-Born-approximation scattering between a single particle and the radiation field. The second-Born-approximation terms are proportional to $\tilde{\gamma}^4N$ instead of $\tilde{\gamma}^4N^2$ because the fundamental process involves a single particle instead of a pair of particles.

In a second paper we explicitly evaluate and sum the $\tilde{\gamma}^4$ terms in $(\partial R/\partial t)$ and the coupled $(\partial\rho/\partial t)$. The explanation of the Lamb dip and the steady state to order $\tilde{\gamma}^4$ suggested by this section differs fundamentally from Lamb's[3] explanation. Lamb retains only the $\tilde{\gamma}^4N$ term because he follows the detailed behavior of a single particle. He does not obtain the $\tilde{\gamma}^4N^2$ terms because his theory starts with average values that preclude the development of the dynamically induced particle-particle correlations which give rise to the $\tilde{\gamma}^4N^2$ terms.

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Erratum

Theory of Superconductors Containing Magnetic Impurities, PETER FULDE AND KAZUMI MAKI [Phys. Rev. **141**, 275 (1966)]. The $\kappa_2(t)$ parameter used in this paper is based on the original theory of type-II superconductors given by one of the authors (K.M.).[1] This theory has recently been corrected by Caroli, Cyrot, and de Gennes.[2] The $\kappa_2(t)$ parameter in this revised formulation depends not only on temperature but also on the concentration of the magnetic impurities. The explicit form of $\kappa_2(t)$ is given by[1]

$$\kappa_2(t)=\frac{\pi^2}{2[7\zeta(3)]^{1/2}}f(\rho)^{1/2}g(\rho)^{-1},\tag{1}$$

where

$$f(\rho)=\sum_{n=0}^{\infty}\left\{\frac{1}{(n+\frac{1}{2}+\rho)^3}-\rho_i\frac{1}{(n+\frac{1}{2}+\rho)^4}\right\},\tag{2}$$

$$g(\rho)=\sum_{n=0}^{\infty}\frac{1}{(n+\frac{1}{2}+\rho)^2},\tag{3}$$

and

$$\rho=\rho_i+\rho_H,\quad \rho_i=\frac{1}{2\pi\tau_sT},\quad\text{and}\quad \rho_H=\frac{\tau_{tr}v^2eH_{c2}}{6\pi T}.$$

The temperature dependence of ρ is determined by the equation

$$\ln\frac{T}{T_{c0}}+\psi(\tfrac{1}{2}+\rho)-\psi(\tfrac{1}{2})=0,\tag{4}$$

where $\psi(z)$ is the digamma function.

From the above expressions, we see that $\kappa_2(t)$ depends on the concentration of magnetic impurities through parameter ρ_i. [The effect of magnetic impurity and the external magnetic field is not additive as is seen from Eq. (2).] Therefore, our conclusion that the jump in the specific heat at the transition from the mixed state to the normal state is a function of temperature only, is incorrect. The effects of the magnetic impurity and the magnetic field on the jump of specific heat is different, though this difference is appreciable only at low temperatures. (The magnetic impurity gives rise to a larger jump in the specific heat than the magnetic field.)

[1] K. Maki, Physics **1**, 21 (1964).
[2] C. Caroli, M. Cyrot, and P. G. de Gennes (unpublished).