Remark Concerning L. M. Falicov's Paper «The Theory of Photon Packets and the Lennuier Effect» (*Nuovo Cimento*, 16, 247, (1960)).

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(ricevuto l'11 Novembre 1960)

In the quoted paper L. M. FALICOV claims to give a theoretical explanation for a phenomenon reported by R. LENNUIER. Radiation of narrow spectral width (Doppler width), emerging from initially excited atoms, passes through an appropriate filter which is supposed to cut the central region of the spectrum down to an insignificantly low intensity. Only the line wings reach a scattering atom at rest and interact with it outside the resonance region. According to current views, only the inciding frequencies should contribute to the scattered radiation.

No objection can be raised against Falicov's procedure to consider only the radiation which has already passed through the filter and which interacts with the scattering atom. It shall be pointed out, however, that it is not allowed to replace the spectral distribution λ_k by a «simple approximation to the real distribution» (p. 255), since λ_k is subject to the principle of causality and has, therefore, to be an analytic function whose poles have to be in one complex half plane.

1) The dispersion formula (18) has been derived by Falicov for the case of radiation which interacts with an atom assumed to be described, at $t=0$, by the ground state wave function of an *unperturbed* atom.

2) The same wave function of an atom which is placed in an external field, does not describe any longer an unexcited atom, but, due to the deformation of the wave functions by the external field, an atom which possesses a finite probability to be excited at $t=0$.

3) Only if the wave packet considered by Falicov would vanish for $t=0$ in the neighbourhood of the scattering atom, it could be claimed that this atom is, initially, unexcited. The spectral distribution, which Falicov assumes, does, however, not satisfy this requirement. The maximum of the obtained radiation at resonance frequency, does, therefore, not represent any scattered radiation, but radiation due to the initially assumed excitation of the scattering atom.

4) In order to find the correct condition to be imposed to λ_k we have to put in (A.1)

$$\sum_k H_{0k}\cdot\lambda_k\cdot\exp\left[i(\omega_0-\omega_k)t\right]=0 \quad \text{for} \quad t<0\,.$$

If this condition becomes satisfied, Falicov's formulae do no longer account for the phenomenon reported by Lennuier.