Absorption of light We alseady know that Wave number ou be expressed as: $L^{2} = \frac{\omega^{2}}{2} e(\omega)$ We know Hat: JE(w) = n' = n - i 2 in other words, we determined what is it refraetive index Liet's open k: $k = \frac{\omega}{c} = \frac{\omega}{c} \omega(\omega) - i \frac{\omega}{c} \mathcal{L}(\omega) = k - i k'$ k appears to be complex munber. What is the physical meaning of k being complex munber? Let's assume Hat plane wave is propagating in the medium: $E = E_0 e^{i(\omega t - k_2)} = E_0 e^{-k'2} i r\omega t - k'z$ The surface of equal phase will more with $V = \frac{C}{-} = \frac{C}{-}$ phase speed in the und: und Now, what about the amplitude? Amplitude depends on Z and decrease $E_A = E_0 e^{-\frac{\omega}{c} de(\omega)} 2$ Hence, intensity decreases as light propagates. $I = I_0 e^{-\frac{2\omega}{\omega}} \mathcal{L}(\omega) \mathcal{Z}$ It decreases, as it depends on X(w), i.e. decaying of oscillator. This law was discovered by Bouquer in 1729. Later it was countinued by Beer and Cambert Beer 1852 Lambert 1760 Liambert noticed dependence on path length Boer established concentration dependence Of cours there were no e/m theory 2 1729, thus Bouques had the following logic: $\begin{array}{c|c}
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In case of solutions

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I=Ioe

c-conembration

Bouguer - Leambert - Beer lan