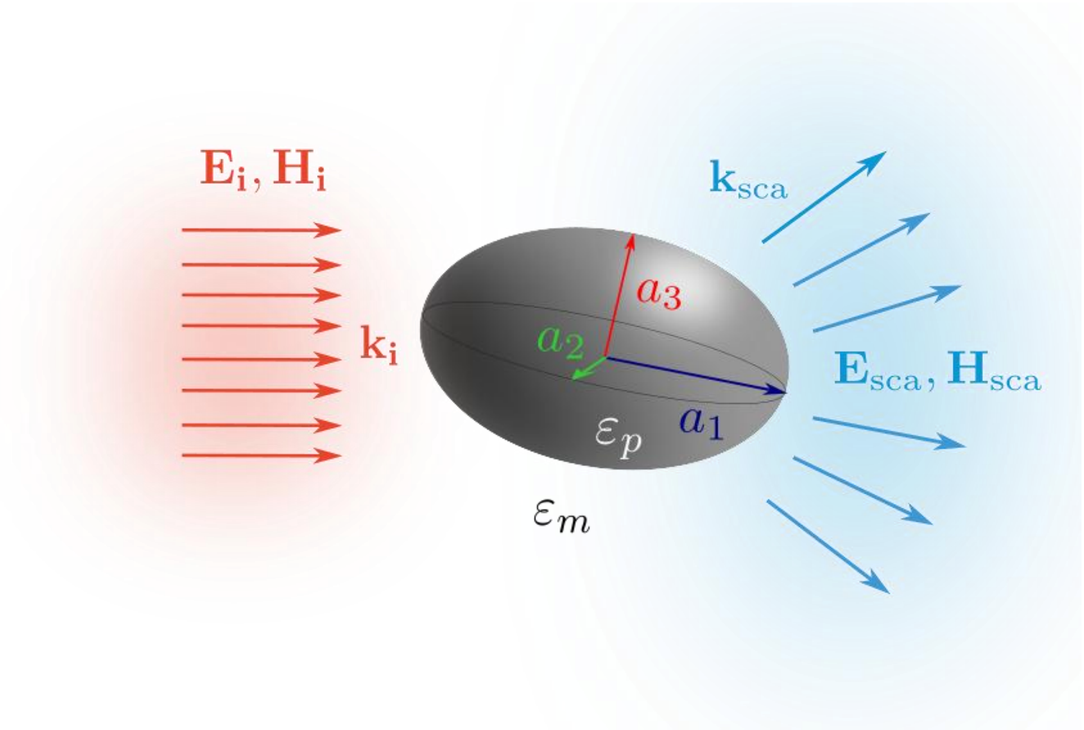
Facultad de Ciencias
UNAM

Congreso Nacional de Física 2025
Toluca, Estado de México

Resonancias plasmónicas dipolares en nanoelipsoides: análisis de contribuciones interbanda e intrabanda en el régimen cuasiestático



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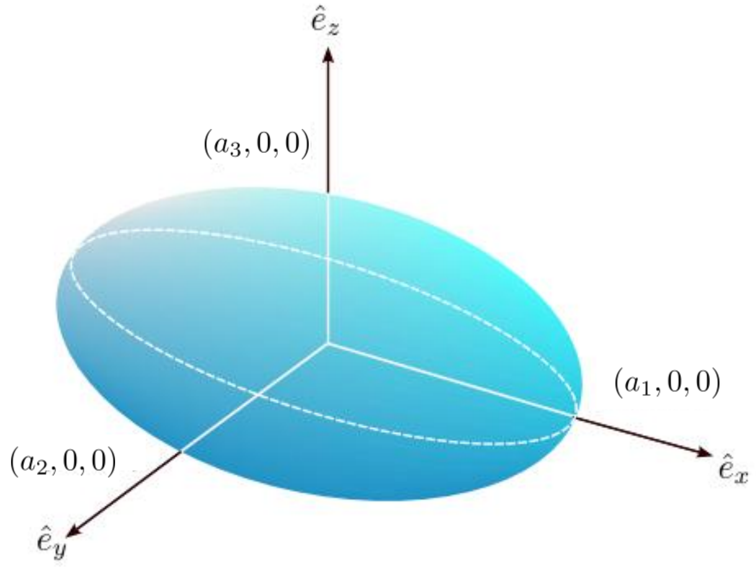
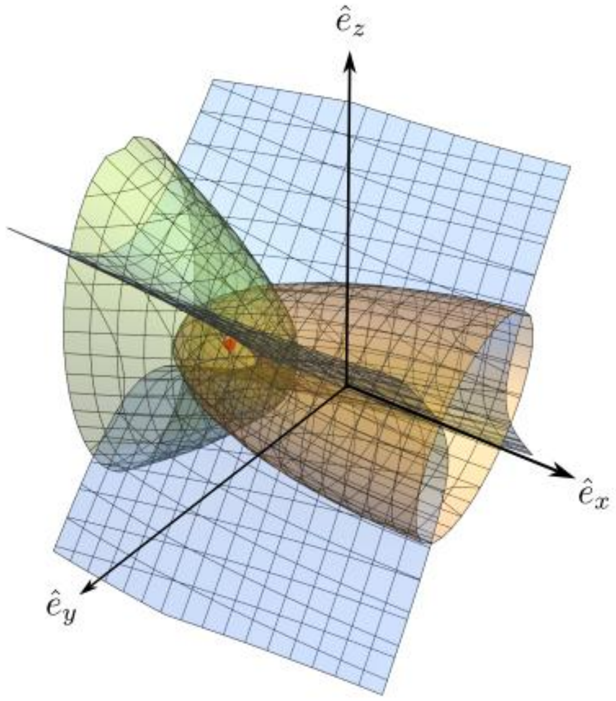
Ecuación de Laplace

$$\nabla^2\phi = (\eta-\zeta)f(\xi)\frac{\partial}{\partial\xi}\left(f(\xi)\frac{\partial\phi}{\partial\xi}\right)+(\zeta-\xi)f(\eta)\frac{\partial}{\partial\eta}\left(f(\eta)\frac{\partial\eta}{\partial\eta}\right)+(\xi-\eta)f(\zeta)\frac{\partial}{\partial\zeta}\left(f(\zeta)\frac{\partial\phi}{\partial\zeta}\right)=0$$

$$-\infty<\xi<a_3^2<\eta<a_2^2<\zeta<a_1^2$$





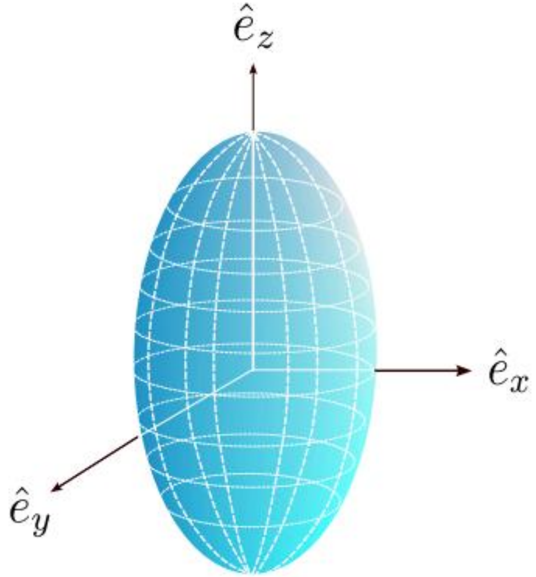
C. F. Bohren y D. R. Huffman. Absorption and scattering of light by small particles. 2008

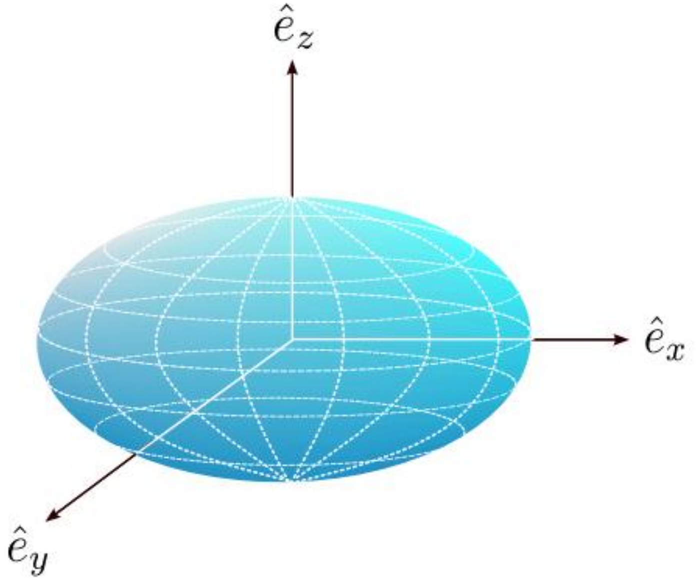
Factores geométricos

$$\alpha_j = V \frac{\varepsilon_p - \varepsilon_m}{\varepsilon_m + L_j(\varepsilon_p - \epsilon_m)}$$

$$L_j = \frac{a_1 a_2 a_3}{2} \int_0^\infty \frac{\mathrm{d}q}{(a_j^2 + q) f(q)}$$

$$f(q) = \sqrt{(a_1^2 + q)(a_2^2 + q)(a_3^2 + q)}$$



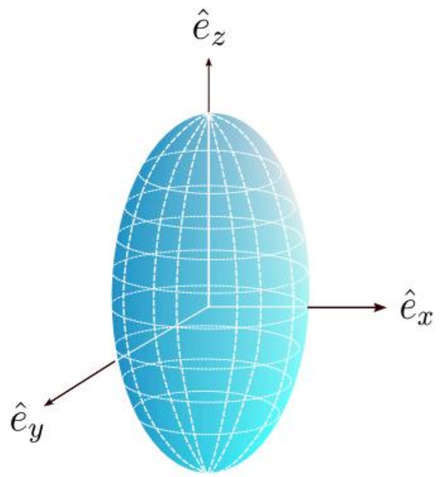


C. F. Bohren y D. R. Huffman. Absorption and scattering of light by small particles. 2008

Factores geométricos

Esferoides prolatos:

$$L_1 = \frac{1-e^2}{e^2}\left[-1+\frac{1}{2e}\left(\ln\frac{1+e}{1-e}\right)\right] \qquad \text{con} \qquad e^2 = 1-\frac{a_2^2}{a_1^2}.$$

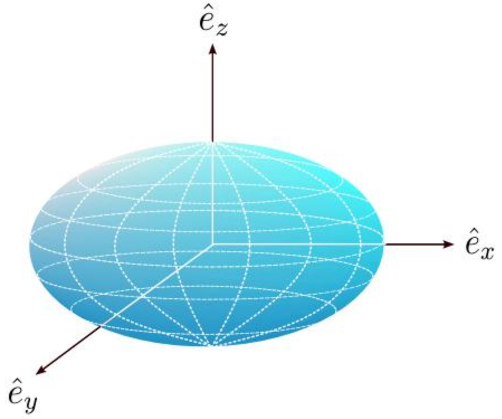


Esferoides oblatos:

$$L_1 = \frac{g(e)}{2e^2}\left[\frac{\pi}{2}-\tan^{-1}g(e)\right]-\frac{g^2(e)}{2},$$

con

$$g(e) = \left(\frac{1-e^2}{e^2}\right)^{1/2}, \qquad e^2 = 1-\frac{a_3^2}{a_1^2}.$$

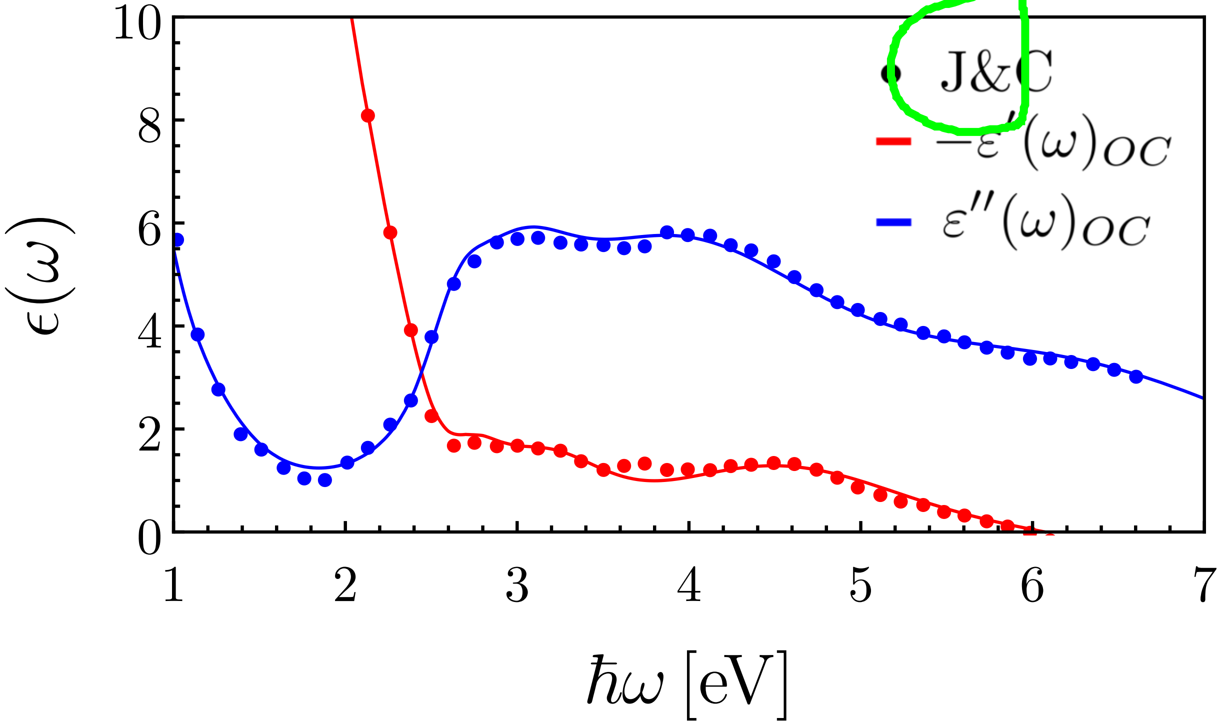


? D. Espinosa. Tesis de Licenciatura (Universidad Nacional Autónoma de México, México, 2022)

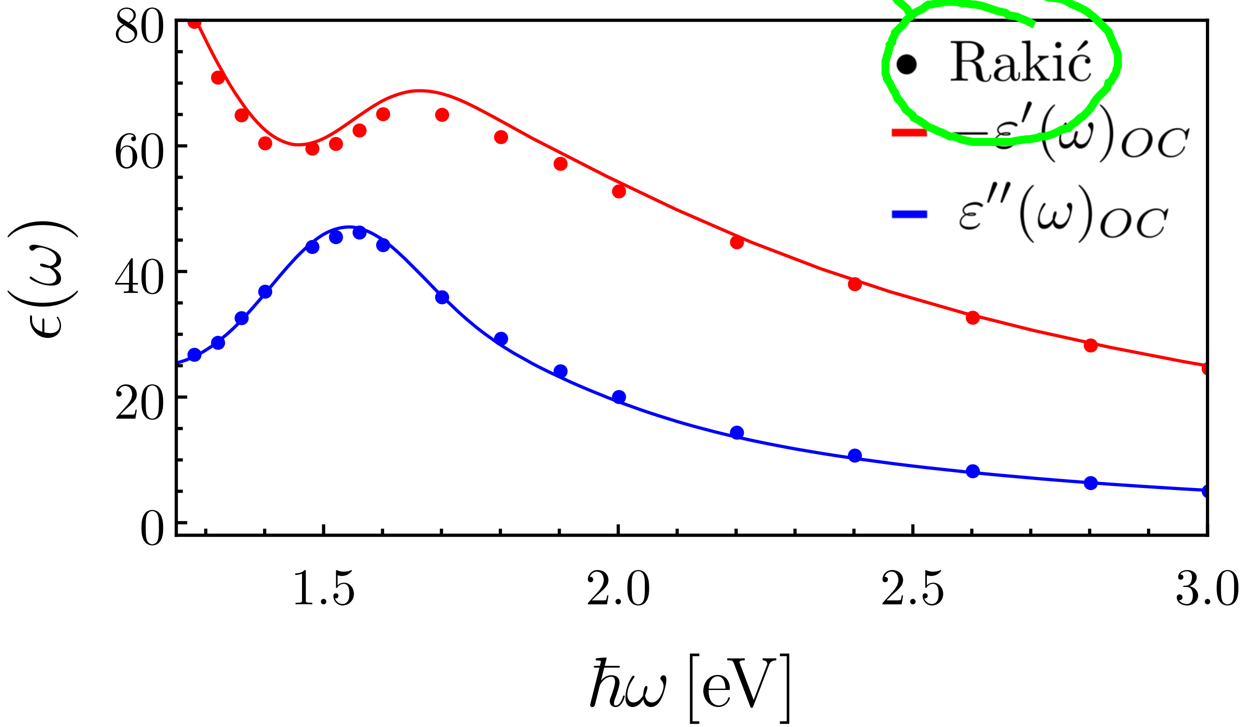
Funciones dieléctricas

Ref

Oro



Aluminio



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