

Expected results from Mie theory:

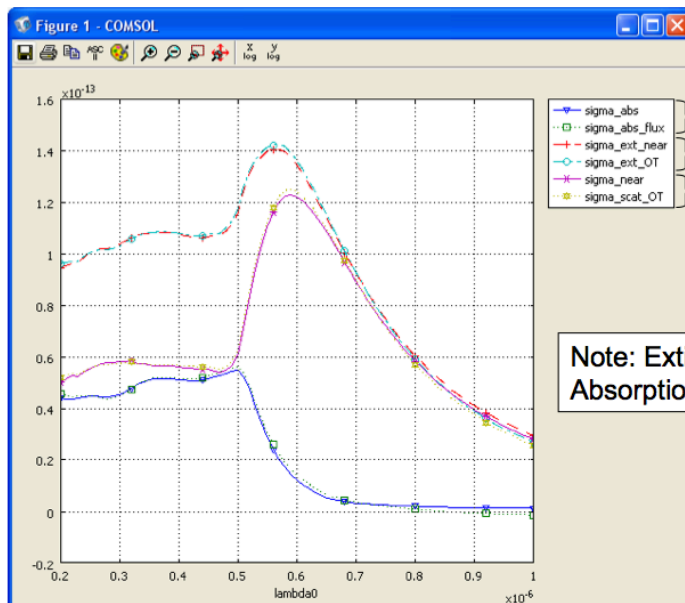
Mie scattering off plasmonic nanoparticle

Model documentation

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Version: COMSOL 3.5a1 (build 3.5.0.608)

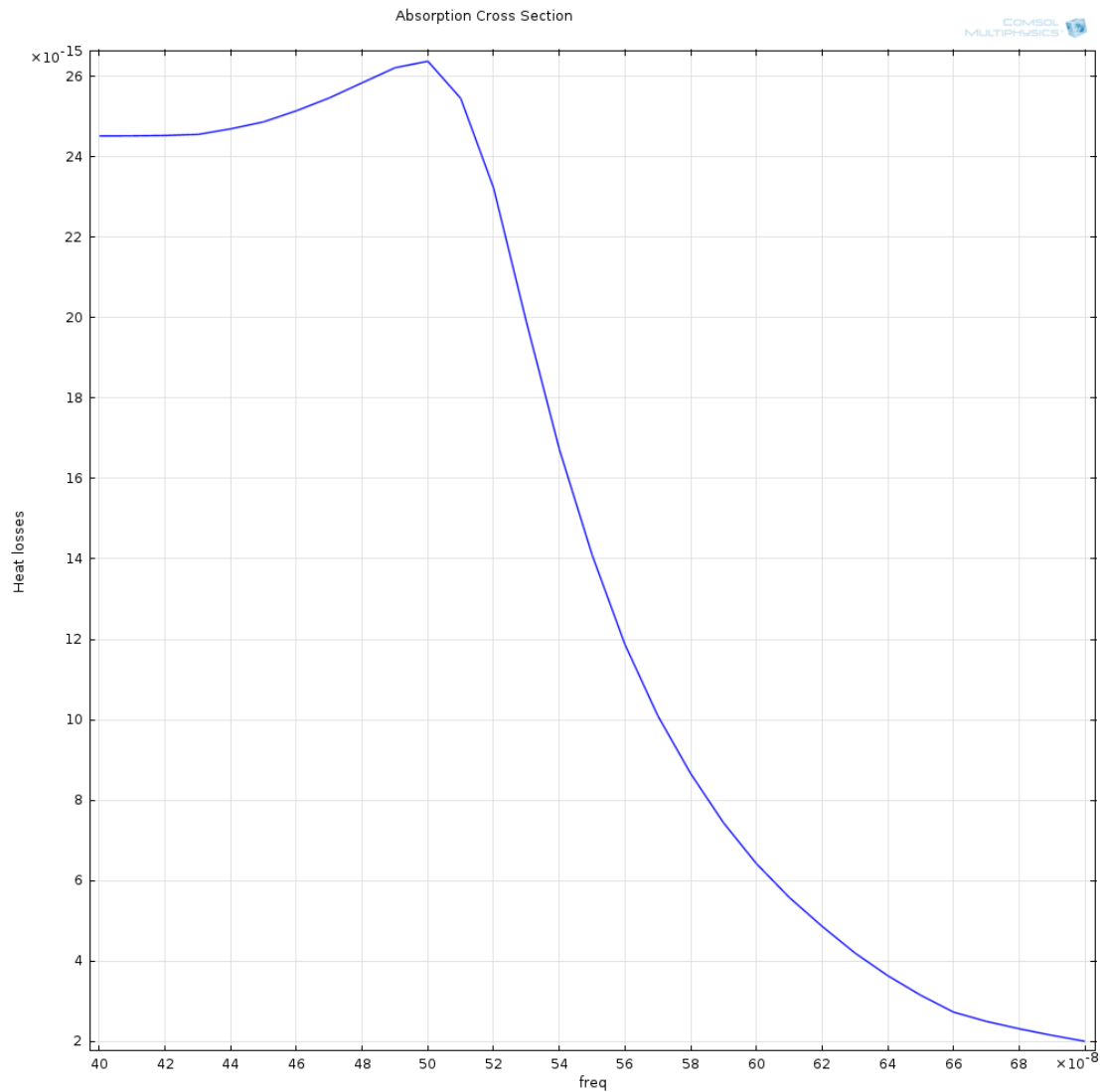
- This creates a plot of three distinct cross-sections calculated by two different methods each. Cross-sections are measured in m^2 .

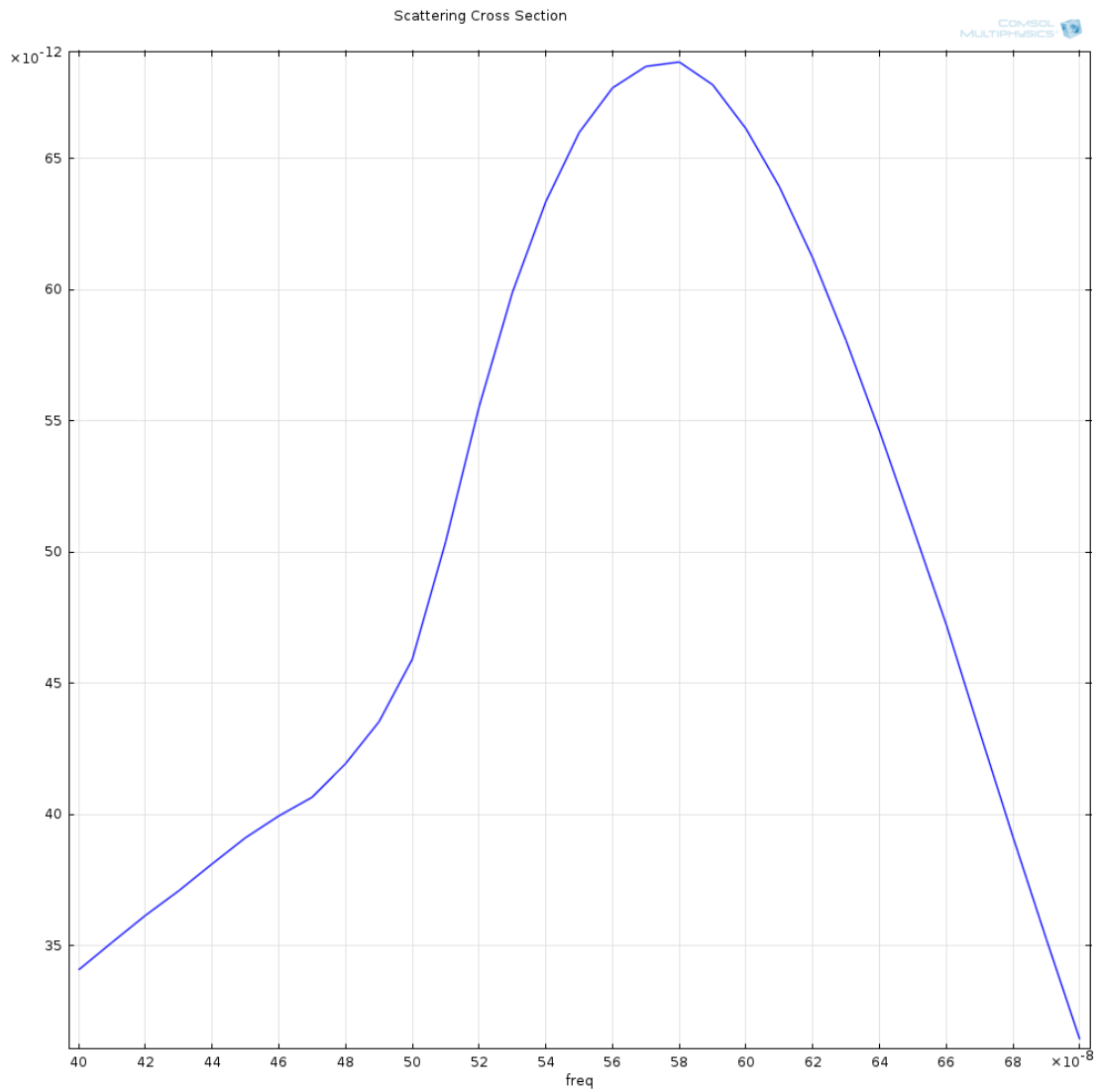


Used expressions for the calculation of cross sections (COMSOL 4.3)

- $const = 2 / (c_const * \epsilon_0_const * E_inc^2)$
- $Scat_gold = const * \int_S (\text{real}(\sqrt{((emw.relEx - conj(emw.relHx))^2 + (emw.relEy - conj(emw.relHy))^2 + (emw.relEz - conj(emw.relHz))^2}))$
- $Abs_gold = const * \int_L (\text{real}((emw.Ex * conj(emw.Ex) + emw.Ey * conj(emw.Ey) + emw.Ez * conj(emw.Ez)) * 0 - i * 2 * \pi * f_0 * (emw.Ex * conj(emw.Dx) + emw.Ey * conj(emw.Dy) + emw.Ez * conj(emw.Dz))))$

The obtained results are:





The peaks appear to be in the right position but the magnitudes are different. I know that we are only calculation for a $\frac{1}{4}$ of sphere, but even if we multiply the curves by 4 we don't reach the expected values.

Any ideas please?