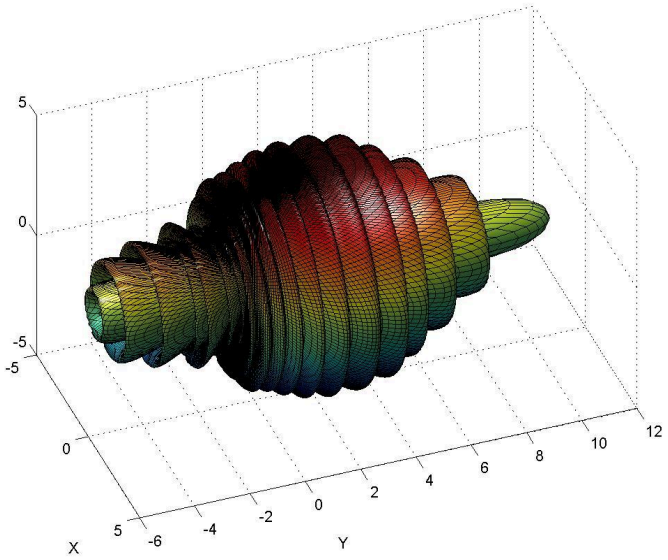
INITIAL REPORT

Maxwell equations applied to Mie scattering theory

Mie theory:
In wave optics physics, the Mie theory, also known as Lorenz-Mie theory, is a theory of light scattering by spherical particles larger than the wavelength. This theory is a particular solution of Maxwell's equations. We may use this theory, for example, to measure the concentration of particles suspended in a liquid or a gas.

Objectives:
Learn to use feel++ CFPDE
Create a simple model to simulate Mie theory.
Improve incrementaly the model

Modeling/Tools:
My first idea is to progress incrementally in modelisation, start easy with one spherical particle in two dimensions and add dimension, particles, non spherical particles.
To resolve Maxwell's equations I'm going to use the Feel++ toolbox and more specifically the CFPDE (Coefficient forms in Partial Differential Equation) toolbox. I will use GMSH to create my models and paraview to visualize the results.



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