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# Mie scattering

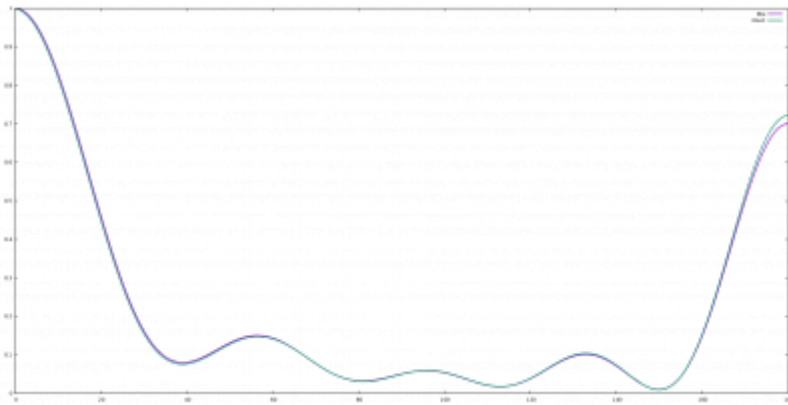
Scattering of monochromatic light by a homogeneous dielectric sphere is a traditional problem in the area of light-matter interaction. It has numerous applications, e.g. in aerosols measurements in environmental studies.

Calculation on a regular, smooth and homogeneous, sphere can be done using Mie's solution of Maxwell equations and there are numerous codes available for this, even [online](#). However, we can use it to benchmark the performance of the near-field to far-field transform.

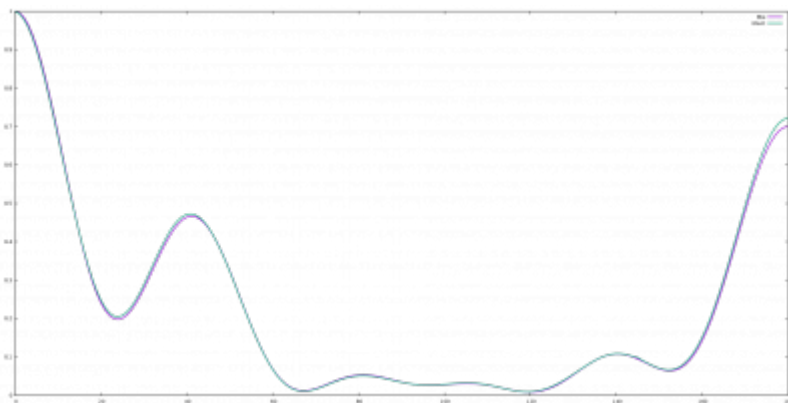
The figures below illustrate a good match between GSvit and Mie's solution calculated using the [MieScatter](#) package for Julia.

Nominal particle radius: 400 nm, wavelength: 633 nm, refractive index of the sphere material: 2.0.

Incident light polarized parallel to the scattering plane (scattered light therefore also polarized parallel):



Incident light polarized perpendicular to the scattering plane (scattered light therefore also polarized perpendicular):



*Under construction.*

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