Scattering results for rounded hexagonal prism

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Programmes

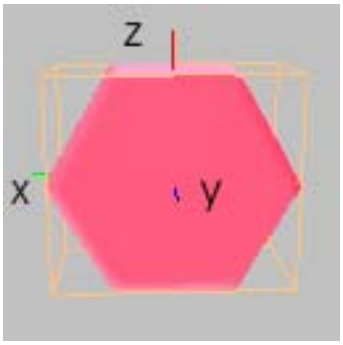
a) Superellipsoid Scattering Tool (SScaTT) based on Nullfield Method with Discrete Sources (NFM-DS)
b) Multiple Multipole Prgramme (MMP),
c) CST Microwave Studio Version 5 (CST MWS)

Scattering problem

hexagonal prism
l = 2µm (rectangular face to rectangular face)
d =1.15471µm (hexagonal face to hexagonal face)
n = 1.5
lam=628.319nm
unit amplitude incident plane wave
plane wave normal x=0, y=0, z=1
incident polarization E field vector: H: x=0, y=1, z=0
V: x=1, y=0, z=0
scattering plane z, y

plotted results: differential scattering cross section DSCS σ normalized by arbitrary constant

$\sigma_{HH} = |E_H|^2$ with incident H polarization
$\sigma_{VV} = |E_V|^2$ with incident V polarization

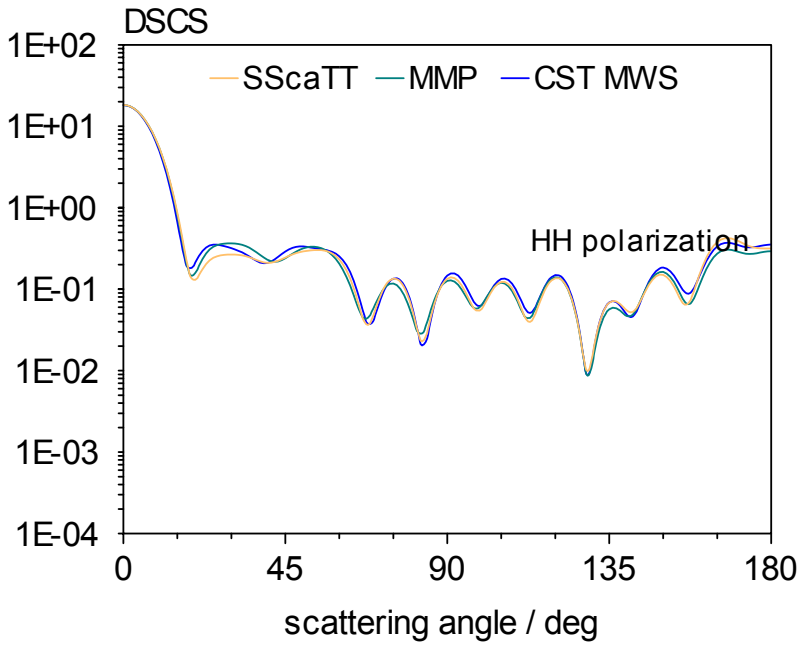


Computational parameters and computer time (with WINXP, Pentium 4, 3 GHz, 2 GByte)

SScaTT: N=24, M=18, 21504 faces, RAM max : 94MB, 4.5h (in total for all incident polarizations and directions)
MMP: 6400 faces
CST: grid lam/25, 1.498.000 cells, RAM max: 463 MB, 40 mins (for every incident polarizations)

Scattering results

HH-polarization



VV-polarization