

# Semester Thesis

## Plasmonics: Simulation of Electron Energy Loss Spectroscopy on Nanoparticles

### Vision and Future Application

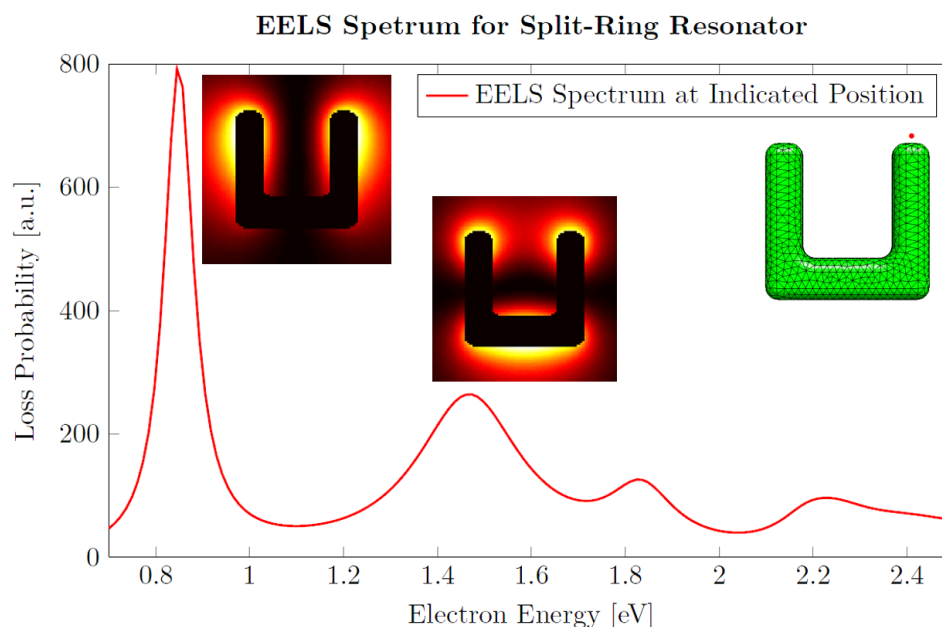
The electron energy loss spectroscopy (EELS) is a state-of-the-art technique to assess the resonances of plasmonic nanostructures. It allows to characterize plasmonic structures both spatially and spectrally with nanometer resolution.

### Type of Work

Theory, programming & simulation

### Requirements

Basic knowledge in electrodynamics and numerical modelling, experience in C++



### Description

For the simulation of such EELS experiments, we employ the Multiple Multipole Program (MMP) which is a numerical method to solve 3D Maxwell's equations for arbitrary structures. Furthermore, it is capable to deal with layered substrates in an elegant way, which is crucial for modern research. Depending on your interests, this thesis project can consist of different parts such as adding new features, improving performance and of course the simulation of plasmonic nanostructures.

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