

Master of Science and currently PhD candidate in physics working at UNAM, under the supervision of Dr. Cecilia Noguez. During my PhD, our research has been focused on modeling electromagnetic near-field enhancement and rate of heat transfer due to coupled surface modes in systems of nanoparticles as well as the influence of shape and physical environment on the plasmonic response of metallic particles. Furthermore, we studied the excitation of multipolar plasmonic modes on metallic dimers excited via an external multipolar electric field. This required proficiency in areas such as spectral representation of the optical response of nanoparticles, fluctuational electrodynamics and a general knowledge in other plasmonic related phenomena. Numerical codes were written in the Julia language and using Mathematica software. During my Masters, we researched the adsorption properties of thiol radicals on metal clusters using first principle calculations implemented in the SIESTA code. This project required expertise in Density Functional Theory, electronic structure of metallic surfaces and clusters as well as abilities in the FORTRAN programming language. During my graduate work, I additionally held the position of teaching assistant for undergraduate courses such as classical electrodynamics, solid state physics and introduction to quantum mechanics.