Design, characterization and fabrication of three-dimensional metallic photonic nanostructures by atomic layer deposition

The aim of my PhD project is the design, fabrication and characterization of metamaterials. These materials, which show effects not found in natural materials, derive their properties from a periodic arrangement of conducting elements. In order to produce samples of such metamaterials, I intend to use Direct Laser Writing, a three-dimensional lithography technique, to produce polymeric nanotemplates which will subsequently be conformally coated with metal by an atomic layer deposition process.