Nanotechnology is one of the fastest developing fields in modern-day science. Nanoparticles, objects that are smaller than 0.1 micrometer, find applications in different areas, most notably: medicine, electronics, energy storage, catalysis and food industry. Such a broad range of applications is made possible by nanoparticles extraordinary properties, which are uncommon to the same materials in the bulk form. One of those properties is called localized plasmon resonance, a phenomenon that is observed for metal nanoparticles and is responsible for strong light-matter interactions. By changing the size, shape or even arranging nanoparticles to form more complex structures, plasmonic properties can be widely modified to suit current applicatory needs. In this project I would like to tackle the plasmon tailoring issues through developing a new method of assembling large amounts of metal nanoparticles to form spiral-shaped structures that will possess unique, chiral plasmonic properties. Such structures gain more and more attention in the scientific community in the recent years and show great promises in fields like biomolecule sensing, energy conversion and other optical applications. In my approach, liquid-crystalline organic compounds (substances that possess characteristics of liquids and crystal-like arrangement of molecules) will be utilized to guide the self-assembly of nanoparticles. The use of soft, switchable organic matter will ensure high flexibility/possibility to adjust properties of the obtained materials for specific purposes.