Nanoscience, the field of study of the behavior of materials and physical systems when confined to near atomic and nanoscale dimensions, and of the physical phenomena that occur at the nanoscale, is currently one of the most dynamic and rapidly developing areas of interdisciplinary research in physics. This is in large part because nanotechnology, covering the field of applications of these properties and phenomena, is believed to have the potential to revolutionize a wide range of scientific, engineering and technological domains in the new century. Furthermore, the distinction between disciplines such as physics, chemistry, and materials science, is less clear when studying and manipulating materials at the nanoscale in the range of 1 to 100 nm over at least one dimension. A principal characteristic of nanoscience is hence a large degree of interdisciplinarity. In this talk, we will address the subject of the convergence of interests for condensed matter physics and other fields such as engineering, identifying some common challenges in nanoscience. In particular, we focus on topics such as magnetic nanostructures, nanoelectronics and the transport properties of elementary excitations in nanostructures. A few projects that are of current interest to our group, including nanopores in biophysics, shall be presented along with recent results.