Sensing and controlling chemistry with light

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Chemistry is the science of change, change in structure, change in properties. Chemistry is also the science that aims to obtain detailed control over these changes and steer their outcome. The interaction between molecules and light is an important means to follow, understand, and control these changes. Recent years have therefore witnessed an increasing demand on high-resolution spectroscopic techniques on isolated molecules under carefully controlled conditions because they provide detailed fingerprints of the molecular dynamic processes that are at the basis of applications of these molecules in nature and technology. Although over the years impressive results have been obtained, it is also becoming eminently clear that the focal areas of scientific interest in the near future require advancing the state-of-the-art and pushing back the boundaries of what is currently possible. In this seminar several new developments will be discussed in the fields of coherent control, high-resolution spectroscopy of charged molecular systems, and of large systems of interest for molecular nanotechnology.