

Physical Methods in Inorganic Chemistry

Photoluminescence- Prof. Dr. A.M. Brouwer

Photoluminescence, often loosely called "fluorescence", has numerous applications of which those in biology and medicine are perhaps the most important. On the more fundamental side, it is one of the most direct ways of obtaining information on electronically excited states in molecules and materials. The topic of the lecture will primarily be the measurement of photoluminescence spectra in steady state and the determination of excited-state lifetimes using time-resolved photoluminescence. Even apparently simple measurements can have important sources of error, and I will discuss the common pitfalls. After this lecture you will know how to obtain correct emission and excitation spectra, and photoluminescence quantum yields, at least in principle. For the determination of excited state lifetimes using photoluminescence several techniques are available. I will talk about the principles and practical performance of laser pulse-based methods such as single photon counting and streak camera detection