

School of Chemistry

Aims and Objectives: Session 2017-2018 Module CH5517: Advanced Physical Inorganic Chemistry

Course Title: Photophysics of Coordination Compounds

Duration: 10 hours

Lecturer: Dr E. Zysman-Colman

Aims: The aim is to provide an overview of the ground state and excited state properties of coordination compounds. This will be accomplished through detailed analysis of the photophysical behavior of archetypal complexes such as $[\text{Ru}(\text{bpy})_3]^{2+}$. Basic concepts in photophysics and electrochemistry in terms of theory and measurement setup will also be introduced.

Objectives:

1. To explain the nature of the ground and excited states in coordination compounds, the different types of transitions, understand Jablonski diagrams.
2. To understand how one measures accurately these properties: absorption spectroscopy and emission spectroscopy.
3. To understand how electroluminescent devices such as organic light-emitting diodes work and to understand how solar harvesting devices such as solar cells work.
4. To understand the nature of electron and energy transfer between separate photoactive molecules.
5. To discuss selected examples that illustrate structure/photophysical property relationships in coordination compounds.