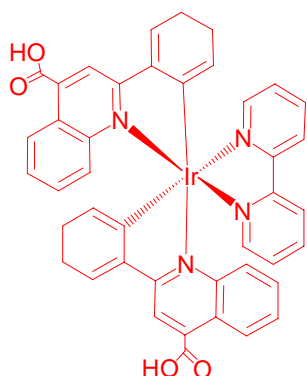
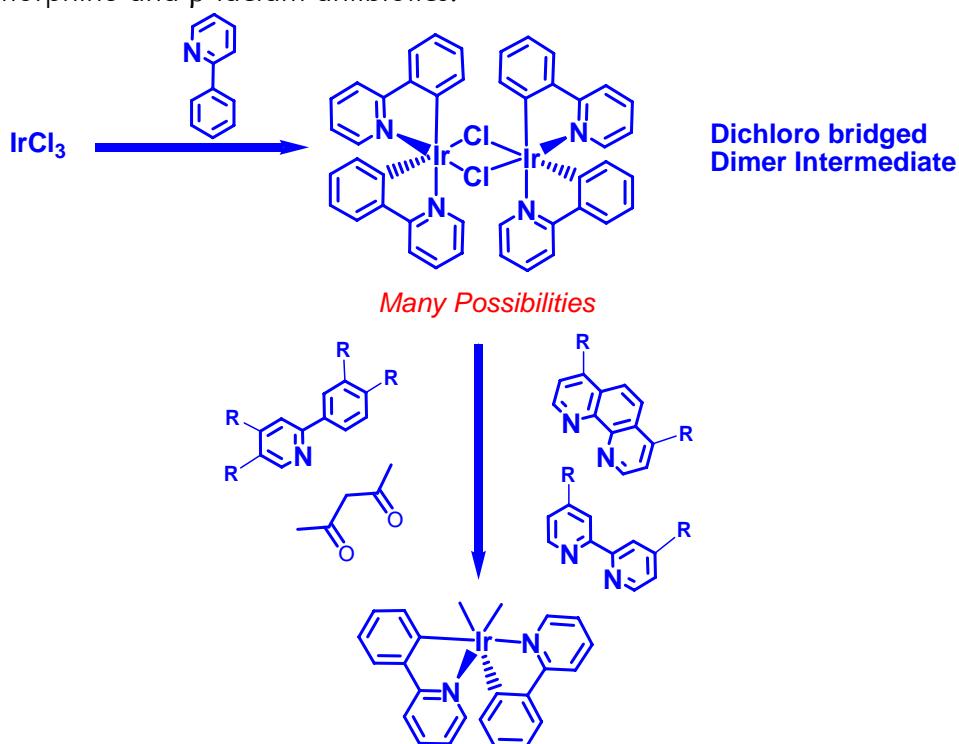


2. Synthesis and sensing applications of highly luminescent Iridium complexes (with Dr. Bruce James).



Cyclometallated Ir(III) complexes such as $\text{Ir}(\text{ppy})_3$ and $\text{Ir}(\text{ppy})_2(\text{N}^{\wedge}\text{N})^+$ where ppy = 2-phenylpyridine and $\text{N}^{\wedge}\text{N}$ is a derivative of bipyridine or phenanthroline, display an intriguing combination of luminescent and electrochemical properties. The electrochemiluminescence (ECL) of these compounds, where the excited state is formed by applying a suitable voltage, has recently been demonstrated to be quite exceptional. We have identified a synthetic strategy which allows us to quite easily vary the characteristics of these complexes by varying one or more of the ligands. For example the colour of the emission can be varied from green to red. There is a vast range of possibilities for novel, highly luminescent sensing molecules based on bis- or tris- cyclometallated complexes such as those shown below. We will exploit the exceptional properties of the species we synthesise to form the basis of a highly sensitive analytical technique for the determination of selected analytes such as codeine, morphine and β -lactam antibiotics.



Chat to someone in the Research group: PhD student Reshmi Kiran does some very interesting work in this area.