



— XXIV VIRTUAL CONFERENCE —
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EuCOMC XXIV

— SEP 1st - 3rd 2021 —

ALCALÁ DE HENARES / MADRID-SPAIN

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BOOK OF ABSTRACTS



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STRUCTURAL AND CHROMIC BEHAVIOUR OF CYCLOPLATINATED(II) COMPLEXES BEARING ISOCYANIDE LIGANDS

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Cyclometalated platinum(II) complexes have received extensive attention due to their properties, such as long emissive lifetimes, high phosphorescent efficiency and tuneable excited states. All these characteristics make them attractive candidates for chromic devices with applications in bioimaging, sensors and optoelectronic devices.^[1]

In particular, cycloplatinated complexes bearing strong field isocyanide ligands have attracted a great interest as efficient chromophores with stimuli switching responses. In this regard, we have previously reported a family of chloride isocyanide Pt(II) complexes with remarkable mechanochromic properties.^[2]

To expand this research, we present the synthesis of a new family of luminescent platinum complexes, chloride-isocyanide [Pt(C[^]N)Cl(CNBu^t)] (**1**) and bis-isocyanide [Pt(C[^]N)(CNBu^t)₂]ClO₄ (**2**), bearing 2-(2,4-difluorophenyl)pyridine (dfppy, **a**) and 4-(2-pyridyl) benzaldehyde (ppy-CHO, **b**) as cyclometalating ligands. The characterization and photophysical properties of all complexes have been studied in detail and rationalized together with TD-DFT calculations.

The chloride derivatives exhibit an interesting multi-stimuli behaviour, related to the formation of aggregates through intermolecular Pt...Pt and/or n...n interactions, resulting in a significantly red-shifted luminescence changes that have been analysed by X-ray studies.

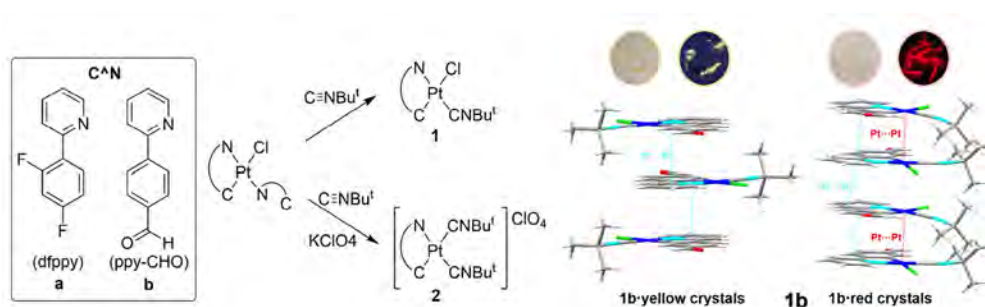


Figure 1. Synthesis and crystal packing of yellow and red form of **1b**

References

- [1] M. A. Soto, R. Kandel and M. J. MacLachlan, *Eur. J. Inorg. Chem.*, 2021, **2021**, 894.
[2] M. Martínez-Junquera, R. Lara, E. Lalinde and M. T. Moreno, *J. Mater. Chem. C*, 2020, **8**, 7221.