

NEW ASPECTS OF THE ENHANCED FF EMISSION IN HELICATE COMPLEXES

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Owing to their chirality and optical properties, helical luminescent architectures have lately attracted considerable interest in material science. Based on rare earths coordination compounds, the synthesis of strategic helicate molecules displaying luminescence or magnetic properties has been reported [1]. We have designed helical mononuclear f-complexes based on hexadentate organic ligands and investigated their photophysical stability in solution. Figure 1 shows the solid-state structures obtained by X-ray diffraction on single crystal X-ray structure of a series of f-coordinating helicates based on an organic ligand consisting of two bipyridine moiety bridged with ethylenediamine [2]. The energy donor level of the ligand efficiently acts for their ff transitions *via* intramolecular energy transfer in organic solutions and in ionic liquids[3, 4]. The introduction of carboxy groups on the ligand backbone, renders these complexes soluble in water. Interestingly, into aqueous media, the f-complexes display stable luminescence in a wide pH range, 2.6-11.4 [5].

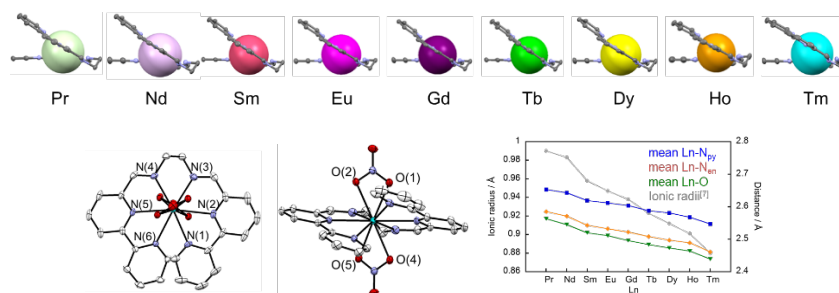


Figure 1. ORTEP drawings of a series of helicate lanthanide complexes and their lanthanoid contraction in coordinating bond distances. Bottom ORTEP is of the Eu complex.

This work was partly supported by KAKENHI, a Grant-in-Aid for Scientific Research on Innovative Areas “Soft Crystals (2903)” (No. 17H06374), and the Bandai Foundation of Aoyama Gakuin.

References

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