

Luminescent Metallomesogens

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Research in materials chemistry focuses increasingly on multifunctional materials, that is materials with more than one specific physical property that is designed into the molecule. These properties may relate directly to one another (that is, a change in one may lead directly to a change in another) or they may be independent. To have liquid crystallinity as one of these properties is clearly of interest owing to the structural organisation that may be superposed.

Display technologies based on organic light emitting materials (OLEDs) have found a niche in the marketplace and, in addition, have the possibility for application in the more general area of lighting. Light is emitted from an OLED display when an excited state, produced by charge injection, decays back to the ground state. The mechanism of charge injection leads equally to singlet and triplet excited states, but for organic and many metal-organic materials, decay from the latter states is slow as formally it is a spin-forbidden process. However, certain heavy transition metals, among which is platinum, allow efficient spin-orbit coupling, which allows some relaxation of the spin selection rule.

This presentation will describe the preparation of families of *N*-heterocyclic ligands, which are either themselves liquid crystalline or in which liquid crystallinity is induced on complexation. Mesomorphism and photophysical properties will be discussed.

References

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