

MS08 Serial crystallography, obtaining structures from many crystals

MS08-1-10 [Re(CO)₂(dppv)(pbi)] complexes containing cis-1,2-bis(diphenylphosphino)-ethene and 2-(2-pyridyl)benzimidazolate ligands
#MS08-1-10

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Abstract

Simple reaction procedure, boiling of an equimolar mixture of [Re(Cl)(CO)₃(dppv)], pbiH, and TiClO₄ in o-dichlorobenzene solutions, leads to two, chromatographically separable, isomers of [Re(CO)₂(dppv)(pbi)] complex. The obtained species, the yellow emissive and the orange emissive isomers, have been identified using FT-IR, ¹H NMR, and ³¹P NMR spectroscopy and their structures confirmed by X-ray examinations. According to obtained crystallography results, the investigated isomers differ mainly in the arrangement of the 2-(2-pyridyl)benzimidazolate (pbi) anion in their structures. Diverse arrangement of the P⁺P and N⁻N⁻ ligand around the central cis-Re(CO)₂²⁺ core results in well pronounced changes in luminescence properties of the studied luminophores, caused by different nature of their lowest excited triplet state.

Details of the molecular structures of the two [Re(Cl)(CO)₃(dppv)] isomers will be discussed.