

# Tuning the Photophysical Properties of Cyclometalated Ir(III) Complexes by a Trifluoroacetyl Group

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Four cationic Ir(III) complexes, [Ir(dpq)<sub>2</sub>(bpy)]PF<sub>6</sub> (**1**), [Ir(dpq)<sub>2</sub>(phen)]PF<sub>6</sub> (**2**), [Ir(tfapq)<sub>2</sub>(bpy)]PF<sub>6</sub> (**3**), and [Ir(tfapq)<sub>2</sub>(phen)]PF<sub>6</sub> (**4**) (dpqH = 2,4-diphenylquinoline, tfapqH = 2-(4'-trifluoroacetylphenyl)-4-phenylquinoline, bpy = 2,2'-bipyridine, phen = 1,10-phenanthroline) have been synthesized and fully characterized. The structure of **4** was also confirmed by single-crystal X-ray diffraction. The electron-acceptor character of the trifluoroacetyl unit leads to a reduced HOMO-LUMO gap and consequently a red-shift of the UV/Vis absorption and luminescence spectra. The solvophobic character of the trifluoroacetyl unit gives rise to a molecule assembly in solution.

*Key words:* Iridium(III) Complex, Crystal Structure, Photoluminescence