

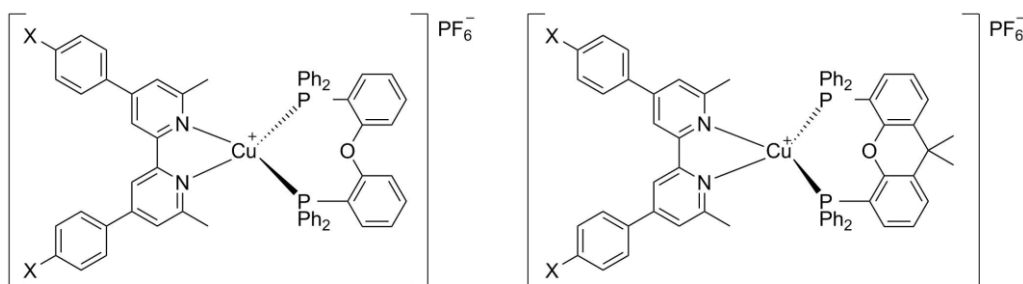
**New Light Emitting Electrochemical Cells with
halogen containing [Cu(N[^]N)(P[^]P)][PF₆] complexes**

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Light emitting electrochemical cells (LEECs) are of growing importance in the field of flexible electronics and large surface lighting devices. The advantage of LEECs over OLEDs is their simple architecture and the usage of air stable electrode and luminescent materials. During the last few years [Cu(N[^]N)(P[^]P)][PF₆] type complexes have been proven to perform surprisingly well in LEEC devices. A series of eight new copper (I) complexes with 4,4'-bis(4-halophenyl)-6,6'-dimethyl-2,2'-bipyridine as chelating diimine ligands and POP (bis(2-diphenylphosphinophenyl)ether) or xantphos (4,5-bis(diphenylphosphino)-9,9-dimethylxanthene) as chelating diphosphine ligands were prepared. The resulting complexes adopted a distorted tetrahedral geometry in the solid state; their photophysical properties will be presented. Photoluminescent quantum yield (PLQY) and excited state lifetime measurements revealed a trend towards higher quantum yields and longer lifetime with increasing electronegativity of the halogen on the bpy ligand. LEEC devices were prepared and characterized.



[Cu(1)(POP)][PF₆] and [Cu(1)(xantphos)][PF₆]
 [Cu(2)(POP)][PF₆] and [Cu(2)(xantphos)][PF₆]
 [Cu(3)(POP)][PF₆] and [Cu(3)(xantphos)][PF₆]
 [Cu(4)(POP)][PF₆] and [Cu(4)(xantphos)][PF₆]
 [Cu(5)(POP)][PF₆] and [Cu(5)(xantphos)][PF₆]

X = F
 X = Cl
 X = Br
 X = I
 X = H