Intense White Molecular Fluorescence from Naphthoxazole-Quinoline Derivatives

Zanocco, Renzo P.

Valdebenito, Silvana

Gidi, Yasser

Zapata-Torres, Gerald

Lemp, Else

Nonell, Santi

Zanocco, Antonio L.

 Naphthoxazole derivatives are small heterocyclic compounds endowed with outstanding fluorescence properties. In this work, we report a detailed study of the intense white light fluorescence observed in naphthoxazole-quinoline dyads in solvent mixtures including at least a strong hydrogen bonding solvent. The same phenomenon was also studied in inclusion complexes naphthoxazole derivatives?sulfonated-?CD either in aqueous solution as well as in solid phase. A novel mechanism of white molecular fluorescence generation based on solvent-to-fluorophore proton transfer facilitated by ground state hydrogen bonding was characterized. The emission combines both, a blue charge transfer fluorescence emitted by the locally excited singlet state along with a red-shifted emission from a proton transfer complex.