

**Strong enhancement in the formation of singlet oxygen and excited triplet state by *meso*-aryl substitution: BODIPYs with attached phenyl, naphthyl, anthryl, and pyrenyl**

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Pristine BODIPY compounds have negligible efficiency to generate excited triplet state and singlet oxygen. We show here that *meso*-aryl-substitution can lead to the singlet oxygen formation up to 65% quantum efficiency for BODIPY compounds. BODIPYs with *meso*-aryl (phenyl, naphthyl, anthryl, and pyrenyl) were synthesized and characterized. The fluorescence, excited triplet state and singlet oxygen formation properties for these compounds were measured. In particular, the presence of anthryl and pyrenyl showed substantial enhancement on the singlet oxygen formation ability of BODIPY up to 35% to 65% efficiency. The results are explained by the presence of intramolecular photoinduced electron transfer from the aryl moiety to BODIPY core. This type of novel photosensitizers may find important applications in organic oxygenation reactions and photodynamic therapy of tumors. This method of promoting T<sub>1</sub> formation is also very different from the traditional heavy atom effect by I, Br or transition metal atoms.

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**References:** (Times New Roman 12)

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