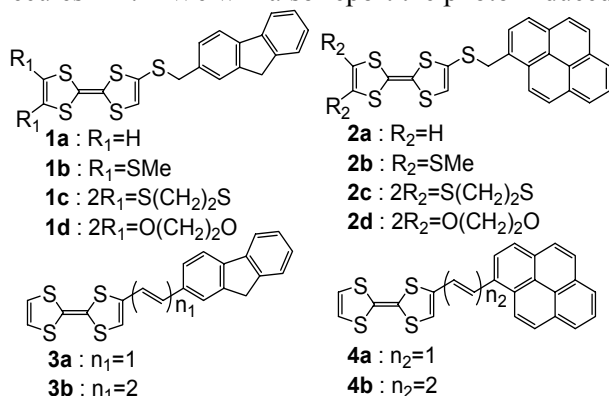


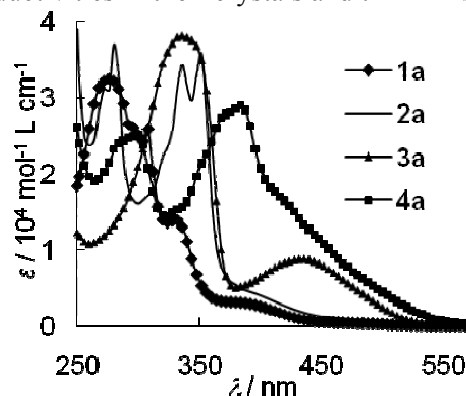
## Development of photo-induced conductors using TTF derivatives substituted by fluorescent aromatic rings

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We have investigated photo-induced conductors using new TTF derivatives containing a fluorescent part such as 2,5-diphenyl-1,3,4-oxadiazole (PPD). In this study, we focused on molecules **1-4** in which fluorene or pyrene part was used as a fluorescent part because of their smaller molecular size and higher planarity than those of PPD. We will discuss about the synthesis, structures and physical properties of molecules **1-4**. We will also report the photo-induced conductivities in their crystals and thin films.



Molecular structures of **1-4**



UV-vis absorption spectra of **1a, 2a, 3a, 4a**

In the UV-vis absorption spectra in CHCl<sub>3</sub> solution, molecules **1** and **3** having the pyrene part showed absorption maxima at longer wavelength region than molecules **2** and **4** having the fluorene part. Furthermore, only the molecules containing the alkene spacer **3, 4** indicated strong charge-transfer absorption bands around 400-500 nm, suggesting that the intramolecular interactions between TTF and fluorescent part in molecules **3, 4** are stronger than those in molecules **1, 2**. To examine the photo-electric conversion functionality, photocurrent generation was measured by photoelectrochemical method using the thin films of molecules **1-4** that were spin-coated on ITO-coated glass substrate. We observed electric current generations that depend on the absorption spectra of thin films, suggesting that absorbed photons are converted to electrons on the thin film/ITO electrode.