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Supplementary data

Photoluminescence

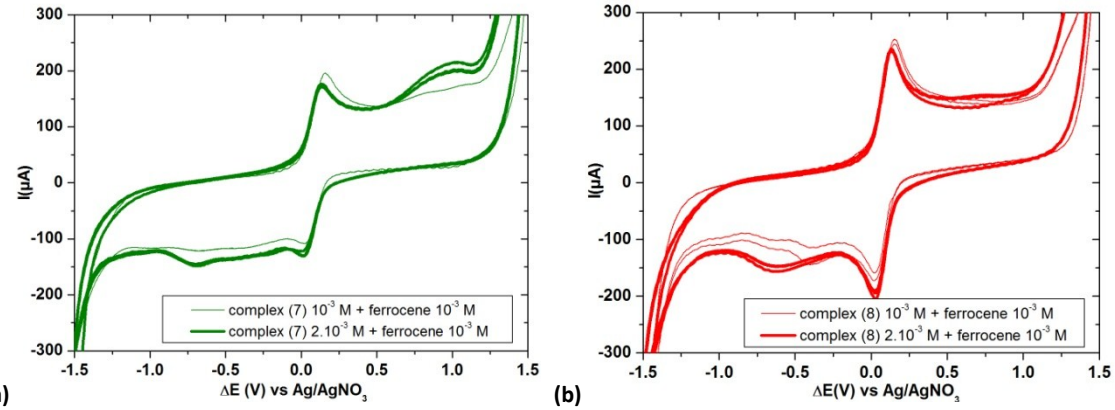
Comparison of different methods of calculation of the quantum yield

In order to confirm the importance of considering a common excitation wavelength for the reference and for the studied samples, two calculation methods have been applied and compared to extract the quantum yield of complex (**8**). In the first one (method a) reference and complex (**8**) are excited at their respective maximum excitation wavelengths, whereas in the second one (method b) reference and complex (**8**) are excited at the same excitation wavelength as recommended in literature[13]. The calculation results are reported in Table 1. The a_1 and a_2 calculations have been performed at the maximum excitation wavelength of anthracene (λ_{exc} = 355 nm) and at the two main maximum excitation wavelengths of complex (**8**) (λ_{exc} = 392 nm and 375 nm respectively). The resulting QY, equal to 22% and 110%, differ deeply, what reveals that the calculation method a is totally inappropriate. The b_1 and b_2 calculations have been performed at the maximum excitation wavelength of complex (**8**) (λ_{exc} = 392 nm) and at a comprise excitation wavelength (λ_{exc} = 375 nm) where the excitation intensities of both anthracene and complex (**8**) are important. The similar resulting QY, equal to 77% and 79% respectively, comfort the validity of the b method for QY determination.

Table 1 : Values of QY of complex (**8**) for different calculation methods.

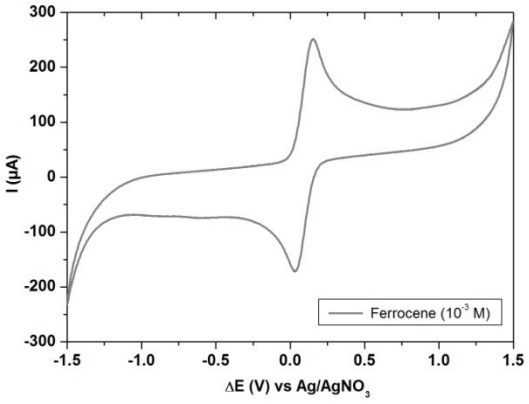
Calculation	a		B	
Method	a_1	a_2	b_1	b_2
$\lambda_{exc,\,anthracene}$ (nm)	**355**	**355**	**391**	**375**
$\lambda_{exc,\,(8)}$ (nm)	**393**	**375**	**391**	**375**
$\Phi_{(8)}$	**22 %**	**110 %**	**77 %**	**79 %**

Electrochemical properties



Figures (a) and (b) : Cyclic Voltammogramms (CV) of acetonitrile solutions of (a) complex (7) and (b) complex (8) (10^{-3} M thin line and 2.10^{-3} M thick line), ferrocene (10^{-3} M) and TBAP (0.1 M). The CV were recorded for 1, 2 or 3 cycles, between -1.5 V (starting potential) and 1.5 V vs $Ag/AgNO_3$ at a 0.1 V/s scan rate ; the CV of low and high concentrated complex solutions have been normalized on the maximum of the oxidation and reduction peaks of ferrocene.

Figure (c) : CV of an acetonitrile solution of ferrocene (10^{-3} M) and TBAP (0.1 M). The CV is recorded for 1 cycle, between 1.5 V and -1.5 V vs $Ag/AgNO_3$ at a 0.1 V/s scan rate.



Figures (a) to (c) :

Electrochemical measurements were performed with a VersaStat potentiostat using a three electrodes cell with a Pt working electrode, a Pt counter electrode and a $Ag/AgNO_3$ reference electrode (Ag in a 0.01 M $AgNO_3$ and 0.1 M TBAP (TetraButyl Ammonium Perchlorate) acetonitrile solution). The electrolytes were deoxygenated before CV recordings.