Supporting information for

Aggregation induced colour change for phosphorescent iridium(III) complex-based anionic surfactants

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**Figure S1.** UV-Vis and normalized emission spectra for complexes 2 (black trace), 3 (red trace) and 4 (blue trace) in N,N-dimethylformamide at concentration of $1.0 \times 10^{-5}$ M in degassed condition. All the samples were excited at $\lambda = 400$ nm.
Figure S2. Emission spectra for complexes 2 (black trace), 3 (red trace) and 4 (blue trace) in BuCN glassy matrix at 77K. The samples were excited at $\lambda = 400$ nm.
**Figure S3.** Absorption and emission spectra for complexes 2 (black lines), 3 (red lines) and 4 (blue lines) at concentration of 1.0×10⁻⁵ M in air-equilibrated (solid traces) and degassed (dashed traces) MeOH. The samples were excited at λ = 400 nm.
Figure S4. Excited-state emission decay for samples of complex 5 at different concentrations in air-equilibrated bi-distilled H₂O: black trace: 1.8×10⁻³ M; red trace: 4×10⁻⁴ M. Inset: concentration 1.0×10⁻⁵ M. The samples were excited at λ = 375 nm.
Figure S5. Excited-state emission decay for samples of complex 6 at different concentrations in air-equilibrated bi-distilled H₂O: black trace: 1.9 × 10⁻³ M; red trace: 4 × 10⁻⁴ M. Inset: concentration 1.0 x 10⁻⁵ M. The samples were excited at λ = 375 nm.
Figure S6. Normalized emission spectra of complex 6 at concentration $1.9 \times 10^{-3}$ M (black trace) and $1.0 \times 10^{-5}$ M (red trace) in air-equilibrated H$_2$O, showing the blue shift upon aggregation at higher concentration.
Figure S7. Comparison between emission of aggregates in solutions and solid state samples for complexes 5–6. Black curves: complex 5 at concentration 1.8×10⁻³ M in air-equilibrated H₂O (solid line) and solid state sample (empty circles); red curves: complex 6 at concentration 1.9×10⁻³ M (solid line) and solid state sample (empty circles). The samples were excited at λ = 400 nm.
**Figure S8.** Size distribution at concentration of *ca.* $2\times10^{-3}$M for aggregated complex 5 (black trace) and 6 (gray trace) in bi-distilled H$_2$O, as obtained by DLS analysis.
Figure S9. Effect on the particle size distributions for complex 5 at concentration of 1.8×10\(^{-3}\) M in air-equilibrated bi-distilled H\(_2\)O upon titration with SDS, as obtained by DLS analysis. Titration with 0.1 M SDS solution, upon adding 0 eq. of SDS (black trace); 1/24 eq. of SDS (red trace); 1/12 eq. of SDS (blue trace); 1/6 eq. of SDS (green trace).
**Figure S10.** Effect on the particle size distributions for of complexes 6 at concentration of $4 \times 10^{-4}$ M in air-equilibrated bi-distilled H$_2$O upon titration with SDS, as obtained by DLS analysis. Titration with 0.1 M SDS solution, upon adding 0 eq. of SDS (black trace); 1/24 eq. of SDS (red trace); 1/12 eq. of SDS (blue trace); 1/6 eq. of SDS (magenta trace).
Figure S11. Comparison between emission spectra of complex 5 in air-equilibrated H₂O: aggregated species at concentration $1.8 \times 10^{-3}$ M (black trace); upon addition of 1/6 eq. of SDS (red trace); sample at concentration $1.0 \times 10^{-5}$ M (blue curve). The samples were excited at $\lambda = 400$ nm.
**Figure S12.** Time resolved emission decays of complex 5 in air-equilibrated H₂O: aggregated species at concentration 1.8×10⁻³ M (black trace). Inset: decay upon addition of 1/6 eq. of SDS (red trace); sample at concentration 1.0×10⁻⁵ M (blue curve). The samples were excited at λ = 400 nm.
Figure S13. Variable temperature $^1$H NMR spectra (from the bottom) of a $3.0\times10^{-3}$ M solution of compound 5 in D$_2$O. The upper trace has been recorded after cooling the sample back to 300 K.
Table S1. Most meaningful photophysical data for complexes 2–6 at concentration of $1.0 \times 10^{-5}$ M in both air-equilibrated and degassed MeOH solutions. $^a$ very broad; $^b$ measured at 502 nm; $^c$ measured at 625 nm.