Supporting Information:

S1:

a. Time-resolved transient absorption spectra of pyrene in [BMIM][BF₄] and decay profile collected at 490 nm

b. Time-resolved transient absorption spectra of benzophenone in [BMIM][BF₄] and decay profile collected at 680 nm
c. Time-resolved transient absorption spectra of Fluorenone in [BMIM][BF₄] and decay profile collected at 530 nm

S2:

a. Decay of pyrene anion radical measured at 490 nm in presence of given concentration of benzophenone in [BMIM][BF₄]. Inset: linear plot of the pseudo-first order rate constants vs the concentration of benzophenone ([BP]) in [BMIM][BF₄].
b. Decay of pyrene anion radical measured at 490 nm in presence of given concentration of benzophenone in ethylene glycol (EG) + glycerol (GL) (0.5:0.5)
Inset: linear plot of the pseudo-first order rate constants vs the concentration of benzophenone ([BP]) in EG+GL (0.5:0.5)
c. Decay of pyrene anion radical measured at 490 nm in presence of given concentration of benzophenone in ethylene glycol (EG) + glycerol (GL) (0.5:0.5)
Inset: linear plot of the pseudo-first order rate constants vs the concentration of benzophenone ([BP]) in EG+GL(0.5:0.5)

\[ k' (\times 10^6 s^{-1}) \]

\[ [BP] (\times 10^{-3} mole. dm^{-3}) \]

slope = \( k_E T = 2.3 \times 10^8 dm^3.mole^{-1}.s^{-1} \)

\[ 0 \times 10^{-3}M \]
\[ 0.392 \times 10^{-3}M \]
\[ 0.769 \times 10^{-3}M \]
\[ 1.132 \times 10^{-3}M \]
\[ 1.481 \times 10^{-3}M \]

\( \Delta \text{Absorbance} \)

\( \text{Time (µs)} \)

0 5 10 15 20 25

0.0 0.1 0.2 0.3 0.4

0.0 0.05 0.10 0.15 0.20

0x10^{-3}M
0.392x10^{-3}M
0.769x10^{-3}M
1.132x10^{-3}M
1.481x10^{-3}M

0.0 0.4 0.8 1.2

[BP] x 10^{-3} mole. dm^{-3}

0.1 0.2 0.3 0.4

2.3x10^8 dm^3.mole^{-1}.s^{-1}

\( \Delta \text{Absorbance} \)

\( \text{Time (µs)} \)

d. Decay of pyrene anion radical measured at 490 nm in presence of given concentration of benzophenone in ethylene glycol. Inset: linear plot of the pseudo-first order rate constants vs the concentration of benzophenone ([BP]) in ethylene glycol.
e. Decay of pyrene anion radical measured at 490 nm in presence of given concentration of benzophenone in decanol. Inset: linear plot of the pseudo-first order rate constants vs the concentration of benzophenone ([BP]) in decanol.

f. Decay of pyrene anion radical measured at 490 nm in presence of given concentration of benzophenone in pentanol. Inset: linear plot of the pseudo-first order rate constants vs the concentration of benzophenone ([BP]) in pentanol.
g. Decay of pyrene anion radical measured at 490 nm in presence of given concentration of benzophenone in acetonitrile. Inset: linear plot of the pseudo-first order rate constants vs the concentration of benzophenone ([BP]) in acetonitrile.
a. Decay of benzophenone anion radical measured at 680 nm in presence of given concentration of fluorenone in [BMIM][BF$_4$]. Inset: linear plot of the pseudo-first order rate constants vs the concentration of fluorenone ([FL]) in [BMIM][BF$_4$].

b. Decay of benzophenone anion radical measured at 680 nm in presence of given concentration of fluorenone in EG+GL(0.5:0.5). Inset: linear plot of the pseudo-first order rate constants vs the concentration of fluorenone ([FL]) in EG+GL(0.5:0.5)
c. Decay of benzophenone anion radical measured at 680 nm in presence of given concentration of fluorenone in EG+GL(0.7:0.3). Inset: linear plot of the pseudo-first order rate constants vs the concentration of fluorenone ([FL]) in EG+GL(0.7:0.3)

\[ \text{E} \times 10^{8} \text{dm}^{3} \text{mole}^{-1} \text{s}^{-1} \]

\[ \text{K'} (\times 10^{6} \text{s}^{-1}) \]

\[ \text{[FL]} (\times 10^{-3} \text{mole.dm}^{-3}) \]

\[ \Delta \text{Absorbance} \]

\[ \text{Time (\mu s)} \]

d. Decay of benzophenone anion radical measured at 680 nm in presence of given concentration of fluorenone in ethylene glycol. Inset: linear plot of the pseudo-first order rate constants vs the concentration of fluorenone ([FL]) in ethylene glycol.
e. Decay of benzophenone anion radical measured at 680 nm in presence of given concentration of fluorenone in decanol. Inset: linear plot of the pseudo-first order rate constants vs the concentration of fluorenone ([FL]) in decanol.

f. Decay of benzophenone anion radical measured at 680 nm in presence of given concentration of fluorenone in pentanol. Inset: linear plot of the pseudo-first order rate constants vs the concentration of fluorenone ([FL]) in pentanol.
g. Decay of benzophenone anion radical measured at 680 nm in presence of given concentration of fluorenone in acetonitrile. Inset: linear plot of the pseudo-first order rate constants vs the concentration of fluorenone ([FL]) in acetonitrile.