Electronic Supplementary Information (ESI)

Assessing Hydrophobic Deep Eutectic Solvents for Intramolecular Excimer Formation

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Table S1 Recovered Excited-State Intensity Decay Parameters for 1-Py$(CH_2)_{10}COO(CH_2)_6$1-Py (10 μM; Excitation with 340 nm NanoLED) Dissolved in the Investigated DESs at Different Temperatures. For T > 323.15 K, the Parameters are Obtained *via* Global Fitting Strategy. Errors Associated with Decay Times are ≤ ± 2%.

Temperature (K)	λ_{em} (nm)	τ_1 (ns) (α_1)	τ_2 (ns) (α_2)	χ^2
Men : DA (2 : 1)				
293.15	377	45.1		0.92
	480	42.1 (−0.50)	42.2 (0.50)	2.24
303.15	377	32.5		0.87
	480	33.0 (−0.50)	33.1 (0.50)	2.11
313.15	377	24.5		0.89
	480	26.5 (−0.50)	26.5 (0.50)	1.96
323.15	377	19.3		1.09
	480	21.8 (−0.50)	21.8 (0.50)	1.63
333.15	377	31.6		14.31
		13.4 (0.73)	23.1 (0.27)	0.91
	480	13.4 (−0.48)	23.1 (0.52)	1.62
343.15	377	26.9		10.34
		9.80 (0.64)	21.0 (0.36)	0.89
	480	9.80 (−0.47)	21.0 (0.53)	1.54
353.15	377	22.9		7.33
		7.23 (0.56)	19.2 (0.44)	0.98
	480	7.23 (−0.45)	19.2 (0.55)	1.99
363.15	377	20.0		5.38
		5.27 (0.50)	17.7 (0.50)	0.98
	480	5.27 (−0.43)	17.7 (0.57)	1.67
Men : DA (1 : 1)				
293.15	377	41.7		0.97
	480	39.7 (−0.50)	39.8 (0.50)	1.94
303.15	377	30.8		0.90

	480	31.7 (−0.50)	31.7 (0.50)	1.68
313.15	377	23.6		1.06
	480	25.5 (−0.50)	25.5 (0.50)	1.57
323.15	377	18.8		1.11
	480	20.9 (−0.50)	20.9 (0.50)	1.41
333.15	377	30.6		18.09
		12.1 (0.70)	22.5 (0.30)	1.02
	480	12.1 (−0.48)	22.5 (0.52)	1.44
343.15	377	25.7		14.35
		9.05 (0.65)	20.2 (0.35)	0.98
	480	9.05 (−0.47)	20.2 (0.53)	1.43
353.15	377	22.2		10.73
		6.45 (0.59)	18.5 (0.41)	1.00
	480	6.45 (−0.47)	18.5 (0.53)	1.37
363.15	377	18.8		6.91
		4.83 (0.50)	16.6 (0.50)	0.88
	480	4.83 (−0.45)	16.6 (0.55)	1.26
		Men : DA (1 : 2)		
293.15	377	39.6		0.96
	480	38.4 (−0.50)	38.4 (0.50)	1.59
303.15	377	29.7		0.97
	480	30.9 (−0.50)	30.9 (0.50)	1.47
313.15	377	23.2		1.07
	480	25.3 (−0.50)	25.3 (0.50)	1.27
323.15	377	19.1		1.17
	480	21.0 (−0.50)	21.0 (0.50)	1.26
333.15	377	29.9		15.83
		12.6 (0.67)	21.8 (0.33)	1.05
	480	12.6 (−0.49)	21.8 (0.51)	1.59
343.15	377	25.8		11.92

		9.08 (0.61)	20.1 (0.39)	1.01
	480	9.08 (−0.48)	20.1 (0.52)	1.71
353.15	377	22.0		9.36
		6.58 (0.55)	18.3 (0.45)	1.01
	480	6.58 (−0.47)	18.3 (0.53)	1.72
363.15	377	19.2		6.77
		4.83 (0.48)	16.6 (0.52)	1.04
	480	4.83 (−0.46)	16.6 (0.54)	1.71
		Thy : DA (2 : 1)		
293.15	377	40.3		0.93
	480	38.3 (–0.50)	38.8 (0.50)	1.13
303.15	377	29.6		0.92
	480	30.2 (–0.50)	30.9 (0.50)	1.19
313.15	377	22.3		0.89
	480	24.5 (–0.50)	24.5 (0.50)	1.35
323.15	377	18.0		0.94
	480	20.4 (–0.50)	20.4 (0.50)	1.40
333.15	377	29.6		16.93
		12.0 (0.75)	22.0 (0.25)	0.86
	480	12.0 (–0.49)	22.0 (0.51)	1.41
343.15	377	25.9		12.89
		9.09 (0.69)	20.2 (0.31)	0.89
	480	9.09 (–0.48)	20.2 (0.52)	1.38
353.15	377	22.5		10.72
		6.63 (0.62)	18.6 (0.38)	0.91
	480	6.63 (–0.48)	18.6 (0.52)	1.53
363.15	377	20.2		7.03
		4.92 (0.54)	17.5 (0.46)	0.93
	480	4.92 (–0.47)	17.5 (0.53)	1.43
		Thy : DA (1 : 1)		

293.15	377	39.5		1.01
	480	37.7 (−0.50)	37.9 (0.50)	1.53
303.15	377	29.4		0.95
	480	30.4 (−0.50)	30.4 (0.50)	1.49
313.15	377	22.8		0.93
	480	24.9 (0.50)	24.9 (−0.50)	1.53
323.15	377	18.5		1.21
	480	20.7 (−0.50)	20.7 (0.50)	1.54
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333.15	377	30.2		21.93
		12.5 (0.72)	22.4 (0.28)	0.99
	480	12.5 (−0.49)	22.4 (0.51)	1.48
343.15	377	25.7		17.84
		9.17 (0.65)	20.2 (0.35)	1.13
	480	9.17 (−0.48)	20.2 (0.52)	2.05
353.15	377	22.1		11.96
		6.74 (0.58)	18.3 (0.42)	1.13
	480	6.74 (−0.47)	18.3 (0.53)	1.94
363.15	377	19.3		8.65
		4.98 (0.51)	16.7 (0.49)	1.00
	480	4.98 (−0.47)	16.7 (0.53)	1.82
		Thy : DA (1 : 2)		
293.15	377	37.8		0.88
	480	36.9 (−0.50)	36.9 (0.50)	1.31
303.15	377	28.6		0.85
	480	29.80 (−0.50)	29.85 (0.50)	1.29
313.15	377	22.3		0.85
	480	24.5 (0.50)	24.4 (−0.50)	1.38
323.15	377	18.3		1.16
	480	20.4 (−0.50)	20.4 (0.50)	1.34
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333.15	377	30.1		18.35

		12.4 (0.71)	22.1 (0.29)	0.92
	480	12.4 (−0.49)	22.1 (0.51)	1.34
343.15	377	25.9		13.41
		9.09 (−0.48)	20.3 (0.52)	0.88
	480	9.09 (−0.48)	20.3 (0.52)	1.50
353.15	377	22.1		9.62
		6.76 (0.57)	18.3 (0.43)	0.84
	480	6.76 (−0.48)	18.3 (0.52)	1.57
363.15	377	18.9		6.82
		4.96 (0.49)	16.4 (0.51)	0.91
	480	4.96 (−0.47)	16.4 (0.53)	1.57
		Thy : Men (5 : 1)		
293.15	377	45.7		1.07
	480	42.1 (−0.50)	42.1 (0.50)	1.46
303.15	377	32.9		0.92
	480	33.0 (−0.50)	33.0 (0.50)	1.55
313.15	377	24.3		1.04
	480	26.4 (0.50)	26.3 (−0.50)	1.32
323.15	377	19.0		1.03
	480	21.6 (−0.50)	21.6 (0.50)	1.58
333.15	377	31.3		20.48
		13.6 (0.79)	22.6 (0.21)	0.83
	480	13.6 (−0.49)	22.6 (0.51)	1.20
343.15	377	26.2		18.71
		9.74 (0.70)	20.4 (0.30)	0.89
	480	9.74 (−0.48)	20.4 (0.52)	1.37
353.15	377	22.3		13.21
		7.18 (0.65)	18.2 (0.35)	1.00
	480	7.18 (−0.48)	18.2 (0.52)	1.33
363.15	377	19.2		9.66
		5.23 (0.57)	16.5 (0.43)	0.91
	480	5.23 (−0.47)	16.5 (0.53)	1.57

Thy : Men (2 : 1)				
293.15	377	53.0		0.87
	480	46.9 (−0.50)	46.9 (0.50)	1.22
303.15	377	37.2		0.93
	480	36.3 (−0.50)	36.3 (0.50)	1.24
313.15	377	27.4		0.82
	480	28.7 (0.50)	28.7 (−0.50)	1.33
323.15	377	21.0		0.81
	480	23.3 (−0.50)	23.4 (0.50)	1.43
333.15	377	32.9		19.81
		15.5 (0.82)	22.7 (0.18)	0.89
	480	15.5 (−0.49)	22.7 (0.51)	1.20
343.15	377	25.9		15.82
		10.8 (0.69)	20.7 (0.31)	0.84
	480	10.8 (−0.48)	20.7 (0.52)	1.41
353.15	377	23.2		12.41
		7.82 (0.63)	18.7 (0.37)	0.85
	480	7.82 (−0.48)	18.7 (0.52)	1.75
363.15	377	20.0		8.72
		5.54 (0.56)	17.1 (0.44)	0.83
	480	5.54 (−0.47)	17.1 (0.53)	1.58
Thy : Men (1 : 1)				
293.15	377	58.0		0.95
	480	45.7 (−0.49)	54.3 (0.51)	1.48
303.15	377	40.3		0.97
	480	38.3 (−0.50)	38.3 (0.50)	1.30
313.15	377	28.9		0.90
	480	30.0 (0.50)	30.0 (−0.50)	1.43
323.15	377	22.0		0.95
	480	24.0 (−0.50)	24.1 (0.50)	1.22

333.15	377	33.5		24.14
		15.4 (0.79)	23.7 (0.21)	1.03
	480	15.4 (−0.49)	23.7 (0.51)	1.47
343.15	377	28.0		18.87
		10.6 (0.71)	21.6 (0.29)	0.92
	480	10.6 (−0.48)	21.6 (0.52)	1.39
353.15	377	23.6		14.09
		7.59 (0.63)	19.0 (0.37)	1.00
	480	7.59 (−0.48)	19.0 (0.52)	1.59
363.15	377	20.1		11.18
		5.41 (0.57)	17.3 (0.43)	1.09
	480	5.41 (−0.47)	17.3 (0.53)	1.27
		Thy : Men (1 : 2)		
293.15	377	60.1		0.91
	480	43.5 (−0.48)	58.3 (0.52)	1.25
303.15	377	40.7		0.79
	480	38.7 (−0.50)	38.7 (0.50)	1.17
313.15	377	28.9		0.98
	480	30.1 (0.50)	29.3 (−0.50)	1.48
323.15	377	21.6		0.86
	480	23.6 (−0.50)	23.6 (0.50)	1.68
333.15	377	33.5		22.00
		15.5 (0.79)	22.8 (0.21)	0.83
	480	15.5 (−0.49)	22.8 (0.51)	1.23
343.15	377	27.4		15.56
		10.5 (0.68)	20.8 (0.32)	0.79
	480	10.5 (−0.48)	20.8 (0.52)	1.26
353.15	377	23.1		11.38
		7.49 (0.61)	18.8 (0.39)	0.95
	480	7.49 (−0.48)	18.8 (0.52)	1.77

363.15	377	20.0		9.04
		5.41 (0.55)	17.0 (0.45)	0.87
	480	5.41 (−0.47)	17.0 (0.53)	1.53
Thy : Men (1 : 5)				
293.15	377	61.3		0.86
	480	37.8 (−0.47)	63.8 (0.53)	1.16
303.15	377	40.7		0.83
	480	38.2 (−0.50)	38.3 (0.50)	1.06
313.15	377	28.2		0.89
	480	29.1 (−0.50)	29.2 (0.50)	1.12
323.15	377	20.8		0.96
	480	22.8 (−0.50)	23.1 (0.50)	1.09
333.15	377	32.3		18.94
		13.6 (0.74)	23.7 (0.26)	0.89
	480	13.6 (−0.49)	23.7 (0.51)	1.56
343.15	377	27.1		15.47
		9.45 (0.69)	21.5 (0.32)	0.90
	480	9.45 (−0.48)	21.5 (0.52)	1.67
353.15	377	22.9		10.76
		6.84 (0.63)	19.0 (0.37)	0.83
	480	6.84 (−0.48)	19.0 (0.52)	1.61
363.15	377	19.5		8.19
		4.70 (0.57)	17.1 (0.43)	0.87
	480	4.70 (−0.47)	17.1 (0.53)	1.47

Table S2 Recovered values for the rate constants of intramolecular excimer formation (k_a) and dissociation (k_d), excimer deactivation (k_E) and monomer deactivation (k_M) along with equilibrium constant for excimer formation ($K^*_{eq,a}$) for 1-Py$(CH_2)_{10}$COO$(CH_2)_6$1-Py dissolved in the investigated DESs in the temperature range 293.15 K–363.15 K.

T/K	η (mPa.s)[a]	k_a (10⁶, s⁻¹)	k_d (10⁶, s⁻¹)	k_E (10⁶, s⁻¹)	k_M (10⁶, s⁻¹)	$K^*_{eq,a} = k_a/k_d$
			Men : DA (2:1)			
293.15	28.33	8.34 ± 0.16	neg	23.8 ± 0.2	13.8 ± 0.2	nd
303.15	16.22	13.8 ± 0.2	neg	30.3 ± 0.3	17.0 ± 0.2	nd
313.15	10.10	20.6 ± 0.3	neg	37.7 ± 0.4	20.2 ± 0.2	nd
323.15	6.73	27.6 ± 0.4	neg	45.9 ± 0.5	24.1 ± 0.3	nd
333.15	4.74	37.7 ± 0.5	5.09 ± 0.13	46.7 ± 0.5	28.5 ± 0.3	7.4 ± 0.3
343.15	3.56	48.6 ± 0.7	14.0 ± 0.2	53.2 ± 0.6	33.9 ± 0.4	3.5 ± 0.2
353.15	2.71	61.5 ± 0.9	29.7 ± 0.4	60.4 ± 0.6	38.9 ± 0.4	2.1 ± 0.1
363.15	2.13	76.3 ± 1.5	58.1 ± 0.9	65.1 ± 0.7	46.8 ± 0.4	1.3 ± 0.1
			Men : DA (1:1)			
293.15	20.41	7.99 ± 0.13	neg	25.2 ± 0.2	16.0 ± 0.2	nd
303.15	12.81	13.1 ± 0.2	neg	31.5 ± 0.2	19.3 ± 0.2	nd
313.15	8.54	19.8 ± 0.4	neg	39.2 ± 0.3	22.7 ± 0.2	nd
323.15	6.00	27.2 ± 0.6	neg	47.9 ± 0.4	26.6 ± 0.3	nd
333.15	4.41	40.3 ± 0.9	7.56 ± 0.14	48.3 ± 0.4	30.8 ± 0.3	5.3 ± 0.2
343.15	3.47	52.9 ± 1.1	15.9 ± 0.2	54.9 ± 0.5	36.2 ± 0.4	3.3 ± 0.2
353.15	2.70	71.8 ± 1.3	34.4 ± 0.3	61.0 ± 0.7	41.8 ± 0.4	2.1 ± 0.1
363.15	2.18	85.2 ± 1.6	63.1 ± 1.0	70.6 ± 0.8	48.4 ± 0.5	1.4 ± 0.1
			Men : DA (1:2)			
293.15	16.01	8.77 ± 0.15	neg	26.0 ± 0.3	16.5 ± 0.2	nd
303.15	10.47	14.0 ± 0.2	neg	32.4 ± 0.3	19.7 ± 0.2	nd
313.15	7.45	19.9 ± 0.3	neg	39.6 ± 0.4	23.2 ± 0.2	nd
323.15	5.45	25.4 ± 0.4	neg	47.6 ± 0.5	27.0 ± 0.3	nd
333.15	4.14	36.9 ± 0.6	6.67 ± 0.15	50.2 ± 0.5	31.4 ± 0.3	5.5 ± 0.3
343.15	3.24	50.6 ± 0.8	17.2 ± 0.3	56.1 ± 0.6	36.0 ± 0.4	3.0 ± 0.2
353.15	2.68	66.9 ± 1.0	35.0 ± 0.5	63.5 ± 0.7	41.3 ± 0.4	1.9 ± 0.1

363.15	2.24	83.4 ± 1.6	64.4 ± 1.0	72.2 ± 0.8	47.4 ± 0.5	1.3 ± 0.1
Thy : DA (2:1)						
293.15	16.54	10.1 ± 0.2	neg	26.1 ± 0.2	14.7 ± 0.2	nd
303.15	10.00	16.3 ± 0.3	neg	33.1 ± 0.3	17.5 ± 0.2	nd
313.15	6.89	24.4 ± 0.4	neg	40.8 ± 0.4	20.3 ± 0.2	nd
323.15	4.86	31.3 ± 0.5	neg	49.1 ± 0.4	24.0 ± 0.2	nd
333.15	3.60	46.0 ± 0.6	5.88 ± 0.16	49.0 ± 0.5	27.9 ± 0.3	7.8 ± 0.3
343.15	2.94	58.7 ± 0.8	13.3 ± 0.2	54.9 ± 0.6	32.5 ± 0.3	4.4 ± 0.2
353.15	2.13	76.5 ± 1.3	29.0 ± 0.3	61.5 ± 0.6	37.4 ± 0.4	2.6 ± 0.1
363.15	1.73	93.1 ± 1.8	56.8 ± 0.7	67.6 ± 0.7	43.0 ± 0.4	1.6 ± 0.1
Thy : DA (1:1)						
293.15	15.08	9.09 ± 0.13	neg	26.5 ± 0.3	16.2 ± 0.2	nd
303.15	9.72	14.8 ± 0.2	neg	32.9 ± 0.3	19.2 ± 0.2	nd
313.15	6.93	21.4 ± 0.3	neg	40.2 ± 0.4	22.3 ± 0.2	nd
323.15	5.03	28.1 ± 0.4	neg	48.3 ± 0.5	25.9 ± 0.3	nd
333.15	3.80	40.2 ± 0.6	6.15 ± 0.16	48.4 ± 0.5	29.7 ± 0.3	6.5 ± 0.3
343.15	2.96	53.8 ± 0.9	15.0 ± 0.2	55.4 ± 0.5	34.4 ± 0.4	3.6 ± 0.2
353.15	2.38	70.6 ± 1.3	30.3 ± 0.3	63.7 ± 0.6	38.4 ± 0.4	2.3 ± 0.1
363.15	1.95	87.8 ± 1.8	56.5 ± 0.6	72.5 ± 0.7	44.0 ± 0.5	1.6 ± 0.1
Thy : DA (1:2)						
293.15	13.69	9.79 ± 0.15	neg	27.1 ± 0.3	16.7 ± 0.2	nd
303.15	9.34	15.0 ± 0.2	neg	33.6 ± 0.3	20.0 ± 0.2	nd
313.15	6.64	21.2 ± 0.2	neg	40.9 ± 0.4	23.7 ± 0.2	nd
323.15	4.94	27.2 ± 0.3	neg	49.0 ± 0.5	27.4 ± 0.3	nd
333.15	3.80	38.4 ± 0.4	6.70 ± 0.17	48.7 ± 0.5	31.8 ± 0.3	5.7 ± 0.3
343.15	3.01	52.2 ± 0.8	16.3 ± 0.2	54.7 ± 0.6	35.8 ± 0.4	3.2 ± 0.2
353.15	2.49	66.8 ± 1.2	32.0 ± 0.3	62.7 ± 0.7	40.9 ± 0.4	2.1 ± 0.1
363.15	2.06	85.2 ± 1.7	58.0 ± 0.6	74.7 ± 0.8	44.6 ± 0.4	1.5 ± 0.1
Thy : Men (5:1)						
293.15	29.35	9.87 ± 0.18	neg	23.8 ± 0.3	12.0 ± 0.2	nd
303.15	14.58	16.5 ± 0.3	neg	30.4 ± 0.4	13.9 ± 0.2	nd

313.15	8.50	25.0 ± 0.3	neg	37.9 ± 0.4	16.1 ± 0.2	nd
323.15	5.41	34.2 ± 0.4	neg	46.4 ± 0.5	18.4 ± 0.2	nd
333.15	3.71	47.6 ± 0.6	2.98 ± 0.14	47.4 ± 0.5	19.8 ± 0.2	16.0 ± 0.5
343.15	2.70	64.6 ± 1.0	9.34 ± 0.22	55.8 ± 0.6	21.9 ± 0.2	6.9 ± 0.4
353.15	2.05	84.0 ± 1.4	19.3 ± 0.3	65.1 ± 0.7	25.7 ± 0.3	4.4 ± 0.3
363.15	1.61	103 ± 2	40.5 ± 0.5	76.3 ± 0.9	31.8 ± 0.4	2.6 ± 0.2
			Thy : Men (2:1)			
293.15	40.60	3.53 ± 0.06	neg	21.3 ± 0.3	15.4 ± 0.3	nd
303.15	19.20	7.99 ± 0.25	neg	27.6 ± 0.3	18.9 ± 0.3	nd
313.15	10.58	14.0 ± 0.3	neg	34.8 ± 0.4	22.6 ± 0.3	nd
323.15	6.50	21.0 ± 0.4	neg	42.8 ± 0.4	26.6 ± 0.3	nd
333.15	4.33	30.2 ± 0.6	2.05 ± 0.12	45.6 ± 0.5	30.6 ± 0.4	14.7 ± 0.5
343.15	3.08	43.8 ± 0.8	9.52 ± 0.24	52.4 ± 0.6	34.8 ± 0.4	4.6 ± 0.3
353.15	2.29	61.5 ± 1.3	21.0 ± 0.3	60.0 ± 0.7	38.9 ± 0.4	2.9 ± 0.2
363.15	1.77	83.8 ± 1.7	43.8 ± 0.5	68.4 ± 0.8	42.9 ± 0.4	1.9 ± 0.2
			Thy : Men (1:1)			
293.15	54.98	3.00 ± 0.05	neg	21.9 ± 0.2	14.2 ± 0.2	nd
303.15	24.52	7.26 ± 0.12	neg	26.1 ± 0.2	17.5 ± 0.2	nd
313.15	12.94	13.6 ± 0.2	neg	33.4 ± 0.3	21.0 ± 0.2	nd
323.15	7.68	19.9 ± 0.3	neg	41.6 ± 0.4	25.5 ± 0.3	nd
333.15	4.95	30.7 ± 0.5	2.78 ± 0.15	44.2 ± 0.5	29.4 ± 0.3	11.0 ± 0.4
343.15	3.60	45.3 ± 0.7	10.3 ± 0.2	49.9 ± 0.5	34.9 ± 0.3	4.4 ± 0.3
353.15	2.65	63.8 ± 1.2	23.0 ± 0.3	58.9 ± 0.6	38.6 ± 0.4	2.8 ± 0.2
363.15	2.03	85.8 ± 1.8	46.1 ± 0.5	66.3 ± 0.7	44.4 ± 0.4	1.9 ± 0.2
			Thy : Men (1:2)			
293.15	64.93	3.47 ± 0.06	neg	23.0 ± 0.3	13.2 ± 0.2	nd
303.15	28.45	8.17 ± 0.13	neg	25.9 ± 0.3	16.4 ± 0.2	nd
313.15	14.54	14.7 ± 0.2	neg	34.1 ± 0.4	19.9 ± 0.2	nd
323.15	8.40	22.3 ± 0.3	neg	42.4 ± 0.4	24.0 ± 0.3	nd
333.15	5.29	31.5 ± 0.5	2.22 ± 0.14	45.8 ± 0.5	28.5 ± 0.3	14.1 ± 0.4
343.15	3.59	46.1 ± 0.6	10.4 ± 0.2	52.6 ± 0.6	33.8 ± 0.4	4.4 ± 0.3
353.15	2.59	62.6 ± 0.9	24.4 ± 0.3	60.1 ± 0.7	39.6 ± 0.4	2.6 ± 0.2

363.15	2.00	83.7 ± 1.7	47.0 ± 0.5	68.5 ± 0.8	44.5 ± 0.4	1.8 ± 0.2
			Thy : Men (1:5)			
293.15	88.55	3.52 ± 0.06	neg	26.5 ± 0.3	12.8 ± 0.1	nd
303.15	34.38	8.42 ± 0.14	neg	26.2 ± 0.3	16.1 ± 0.2	nd
313.15	16.70	15.2 ± 0.2	neg	34.3 ± 0.4	20.2 ± 0.2	nd
323.15	9.25	23.5 ± 0.4	neg	43.8 ± 0.5	24.5 ± 0.3	nd
333.15	5.65	35.5 ± 0.5	5.31 ± 0.24	44.9 ± 0.5	29.8 ± 0.3	6.7 ± 0.3
343.15	3.73	51.5 ± 0.7	14.8 ± 0.3	50.5 ± 0.6	35.5 ± 0.4	3.5 ± 0.3
353.15	2.63	70.6 ± 1.4	29.0 ± 0.4	58.2 ± 0.7	40.9 ± 0.4	2.4 ± 0.2
363.15	2.04	101 ± 2	57.5 ± 0.7	67.4 ± 0.8	45.2 ± 0.5	1.8 ± 0.2

[a]Reference 39
neg: negligible
nd: not defined

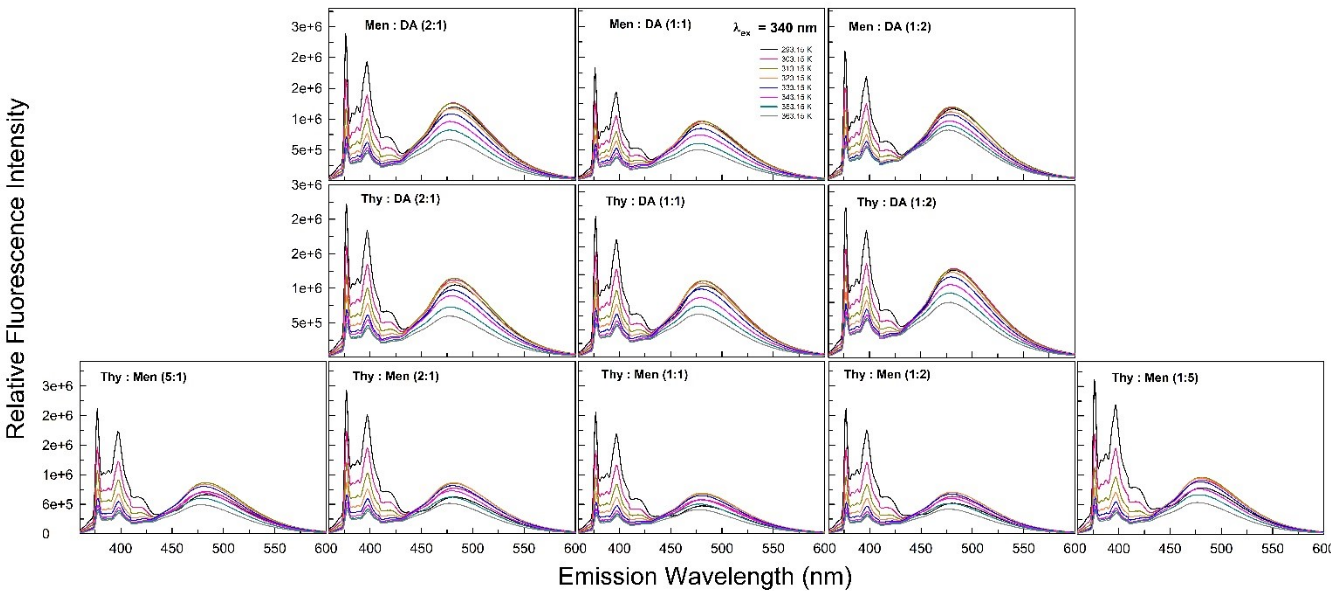

Figure S1. Relative steady-state fluorescence emission spectra [λ_{ex} = 340 nm (Xe arc lamp); excitation and emission slits are 1 and 1 nm, respectively] of 1-Py$(CH_2)_{10}COO(CH_2)_6$1-Py (10 μM) dissolved in the investigated DESs at different temperatures.

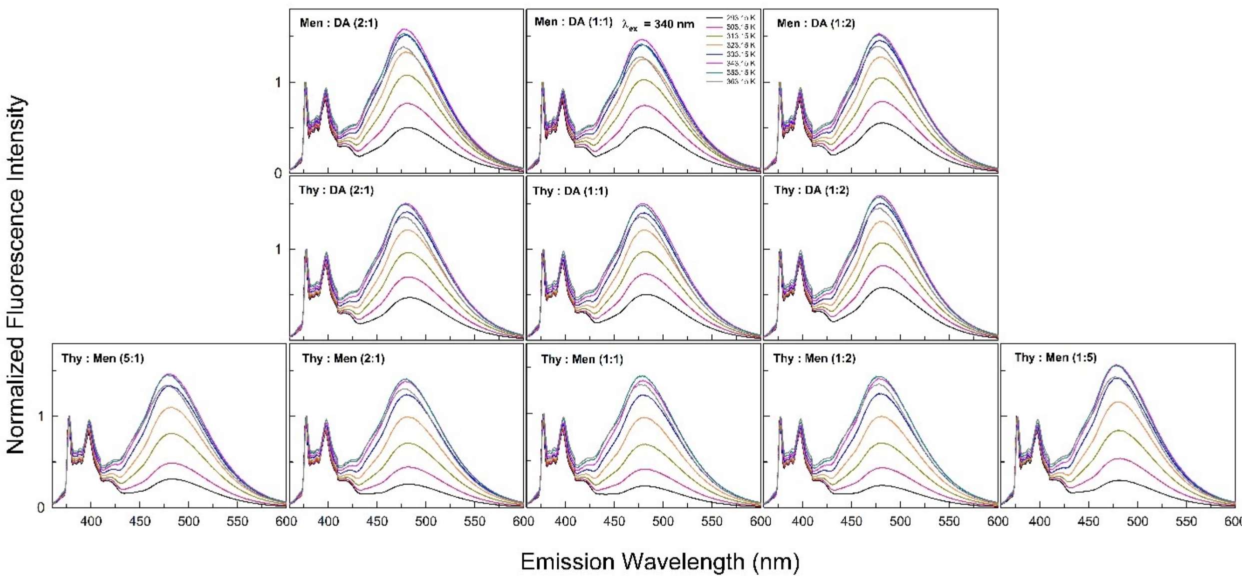

Figure S2. Normalized steady-state fluorescence emission spectra [λ_{ex} = 340 nm (Xe arc lamp); excitation and emission slits are 1 and 1 nm, respectively] of 1-Py$(CH_2)_{10}$COO$(CH_2)_6$1-Py (10 μM) dissolved in the investigated DESs at different temperatures.

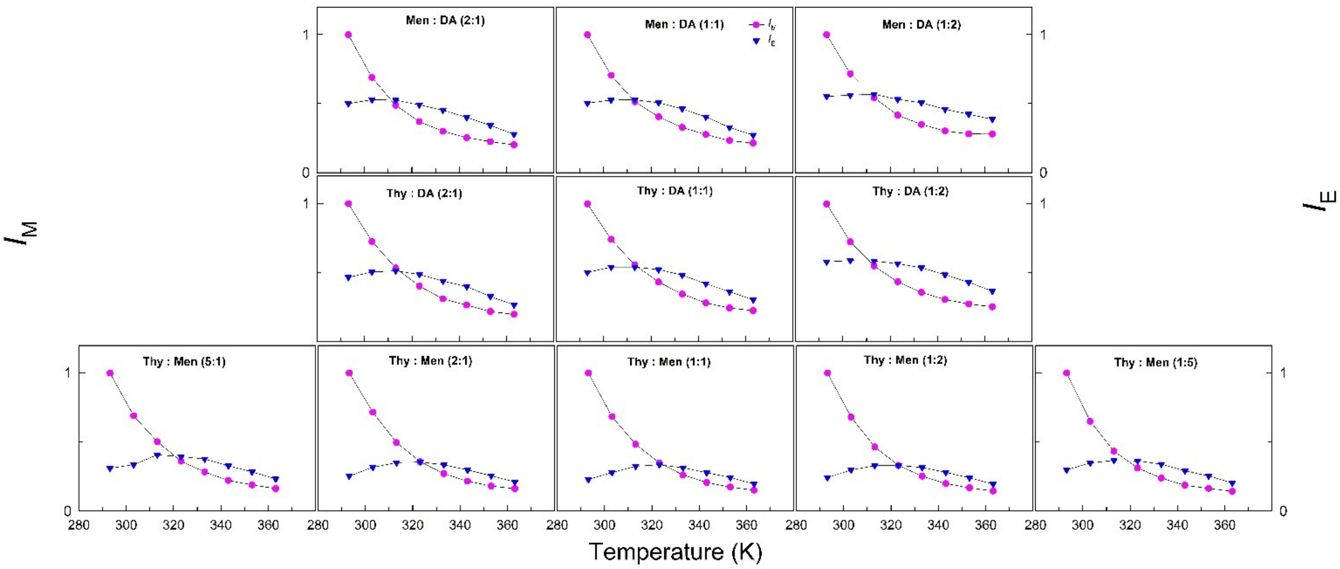

Figure S3. Variation of I_M (at 377 nm) and I_E (at 480 nm) with temperature (K) for 1-Py$(CH_2)_{10}COO(CH_2)_6$1-Py (10 μM) dissolved in the investigated DESs.

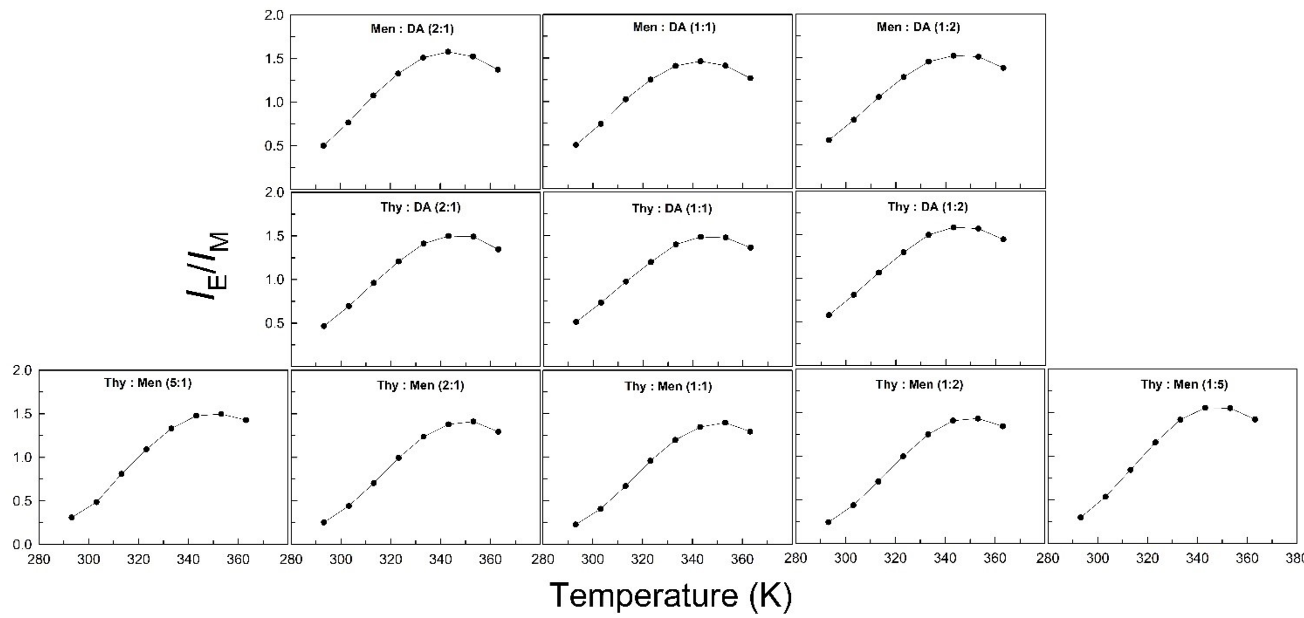

Figure S4. Variation of I_E/I_M with temperature (K) for 1-Py$(CH_2)_{10}$COO$(CH_2)_6$1-Py (10 μM) dissolved in the investigated DESs.

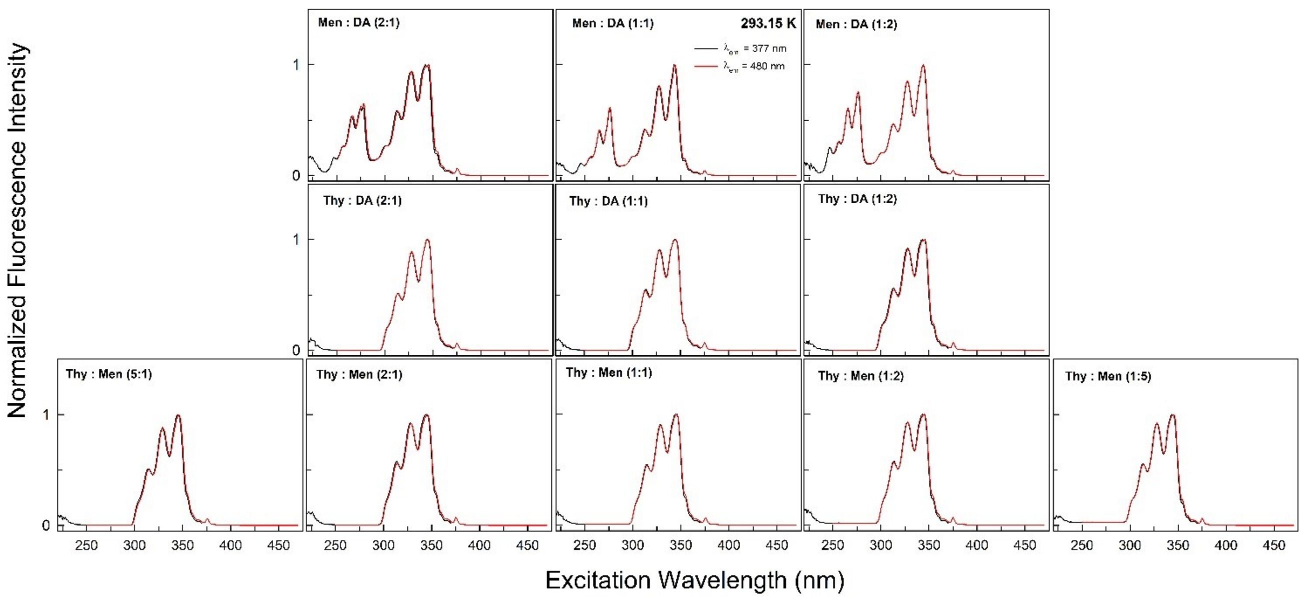

Figure S5. Emission wavelength-dependent fluorescence excitation spectra of 1-Py$(CH_2)_{10}$COO$(CH_2)_6$1-Py (10 μM) dissolved in the investigated DESs recorded while monitoring the emission at 377 nm and 480 nm, respectively, at 293.15 K.

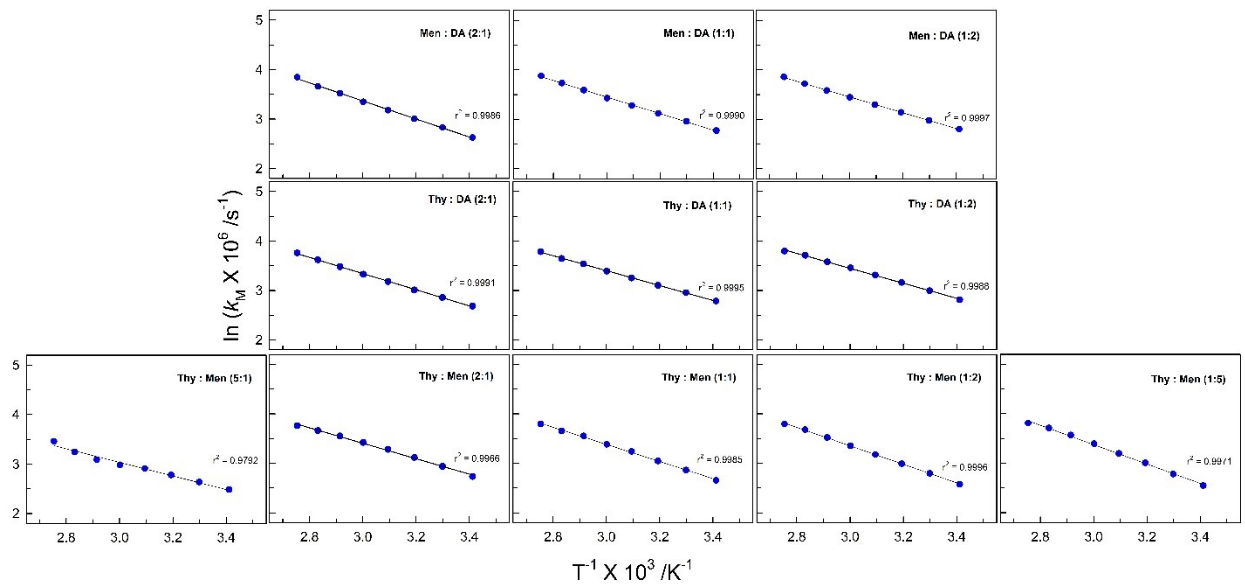

Figure S6. Plot of ln k_M vs T^{-1} for 1-Py$(CH_2)_{10}COO(CH_2)_6$1-Py (10 μM; excitation with 340 nm NanoLED) dissolved in the investigated DESs.

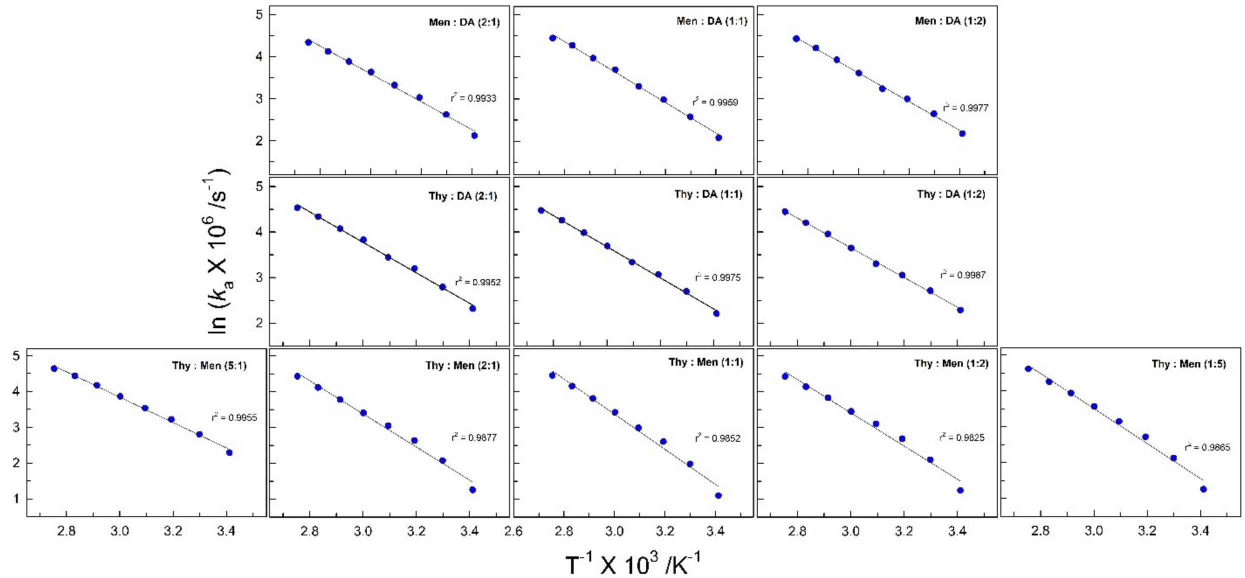

Figure S7. Plot of ln k_a vs T^{-1} for 1-Py$(CH_2)_{10}$COO$(CH_2)_6$1-Py (10 μM; excitation with 340 nm NanoLED) dissolved in the investigated DESs.

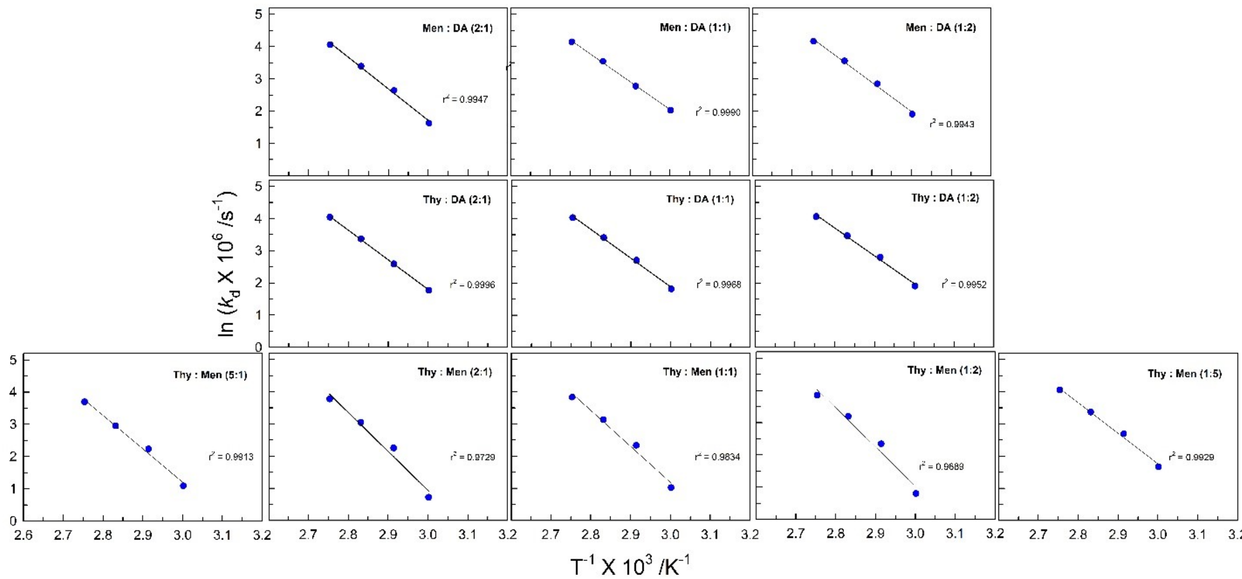

Figure S8. Plot of ln k_d vs T^{-1} for 1-Py$(CH_2)_{10}$COO$(CH_2)_6$1-Py (10 μM; excitation with 340 nm NanoLED) dissolved in the investigated DESs.

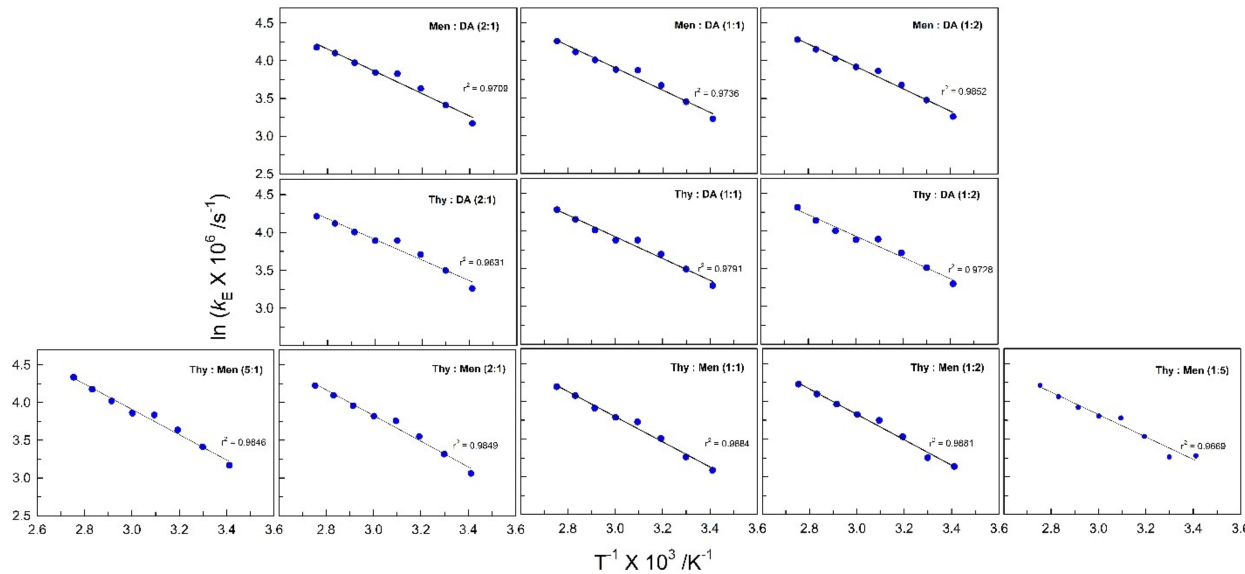

Figure S9. Plot of ln k_E vs T^{-1} for 1-Py$(CH_2)_{10}$COO$(CH_2)_6$1-Py (10 μM; excitation with 340 nm NanoLED) dissolved in the investigated DESs.

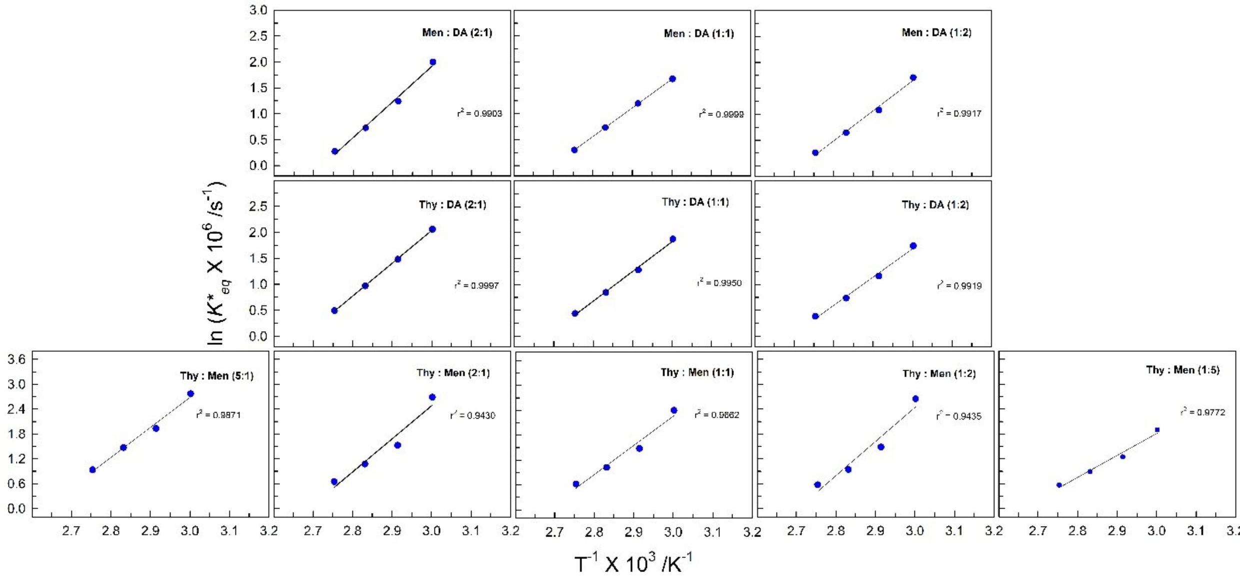

Figure S10. Plot of ln $K^{*}_{\mathrm{eq,a}}$ vs T^{-1} for 1-Py$(CH_2)_{10}$COO$(CH_2)_6$1-Py (10 μM; excitation with 340 nm NanoLED) dissolved in the investigated DESs.