Electronic Supporting Information (ESI) for

Aggregation-induced and crystallization-enhanced emissions with time-dependent of a new Schiff-base family based on benzimidazole

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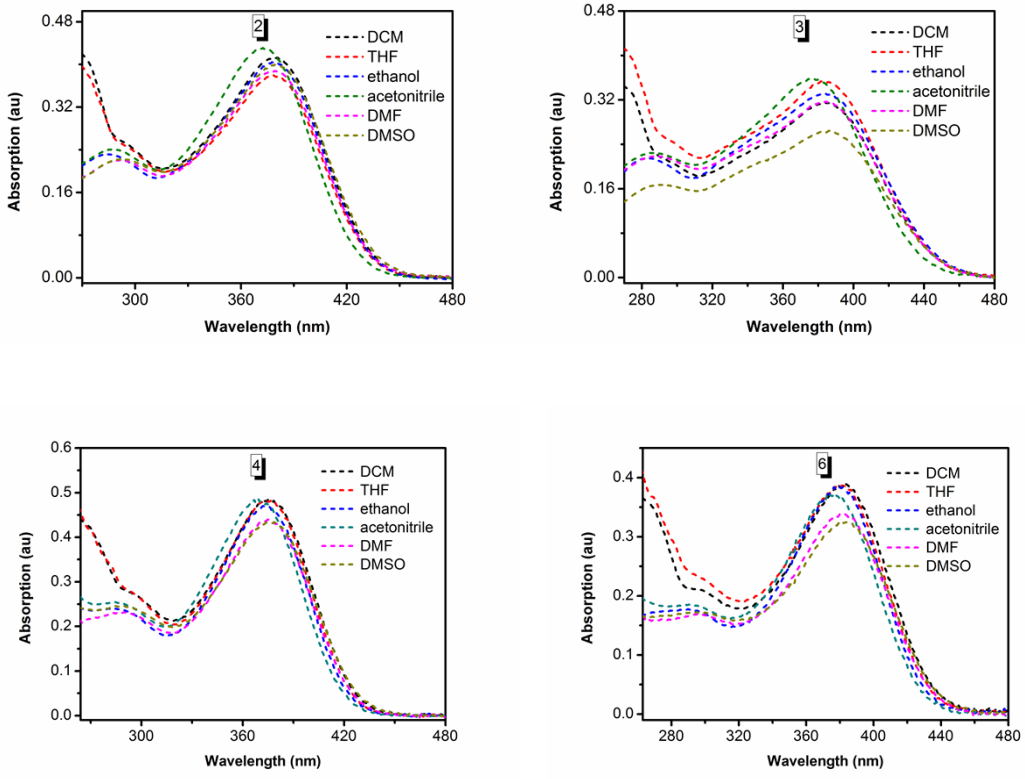

Fig. S1 Absorption spectra of compounds **2**, **3**, **4**, **6** in different polarity solvents (10 μM).

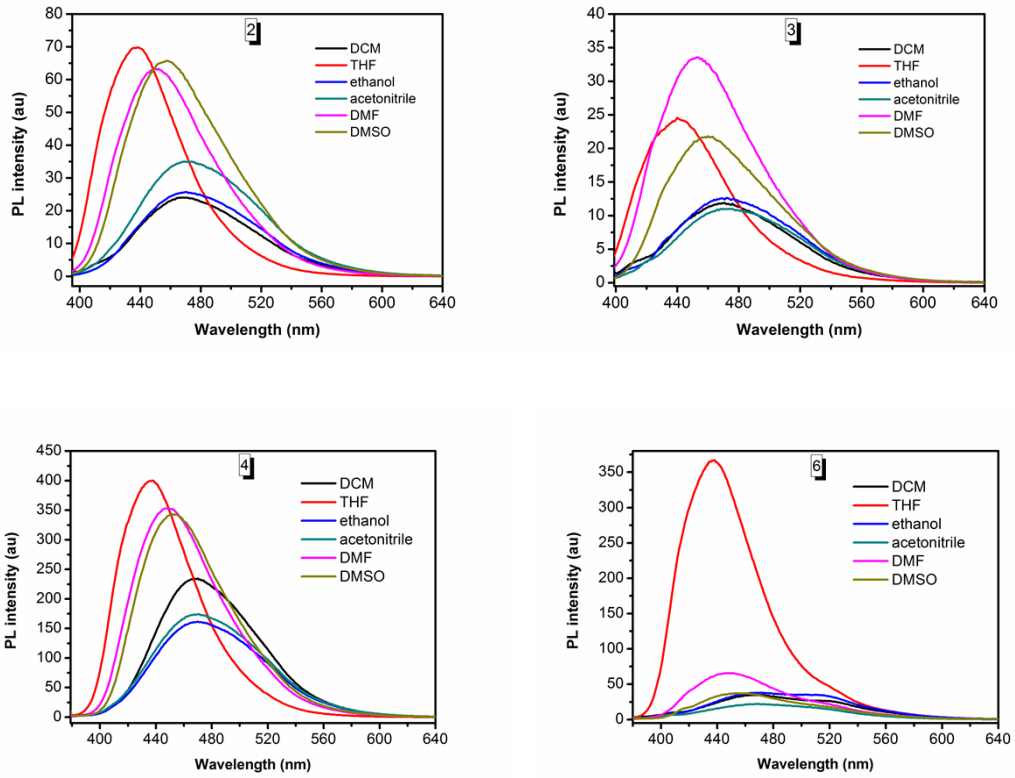

Fig. S2 Fluorescence spectra of compounds **2**, **3**, **4**, **6** in different polar solvents (10 μM).

Table S1 Maximum absorption and emission wavelength of **1-6** in different solvents.

Solv.	**1**		**2**		**3**		**4**		**5**		**6**	
	λ_a	λ_e	λ_a	λ_e	λ_a	λ_e	λ_a	λ_e	λ_a	λ_e	λ_a	λ_e
DCM	380	468	378	468	383	470	375	470	381	467	382	466
THF	380	437	378	436	382	438	376	437	382	443	382	438
Ethanol	379	470	377	470	384	472	376	470	380	466	381	471
acetonitrile	373	470	373	474	378	466	371	471	377	468	377	467
DMF	380	452	380	452	384	453	372	447	381	449	380	449
DMSO	381	459	380	457	386	460	374	452	379	456	381	454

λ_a: maximum absorption wavelength; λ_e: maximum emission wavelength.

Table S2: Energy levels of compounds **1-6.**

Compound	HOMO (eV)	LUMO (eV)	ΔE_g (eV)
1	4.70	1.57	3.13
2	4.74	1.58	3.17
3	4.79	1.77	3.02
4	4.70	1.34	3.36
5	4.70	1.51	3.19
6	4.77	1.49	3.28

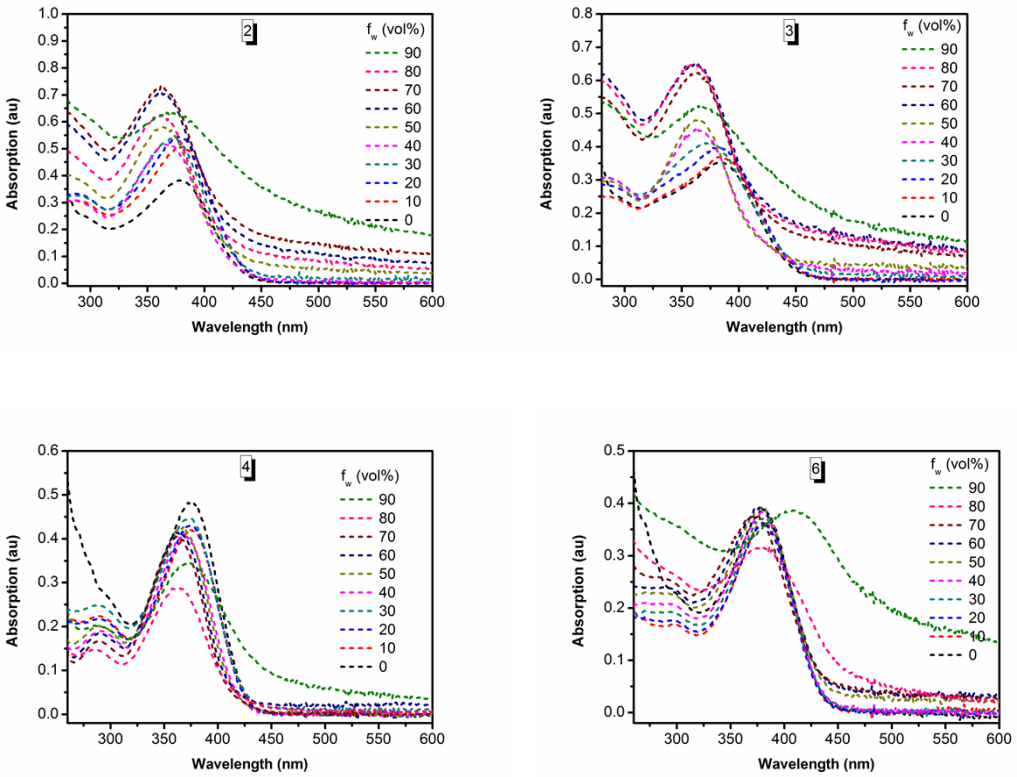

Fig. S3 UV absorption spectra of **2**, **3**, **4**, **6** in THF/water mixtures with different water fractions after water was injected for 1 h (10 μM).

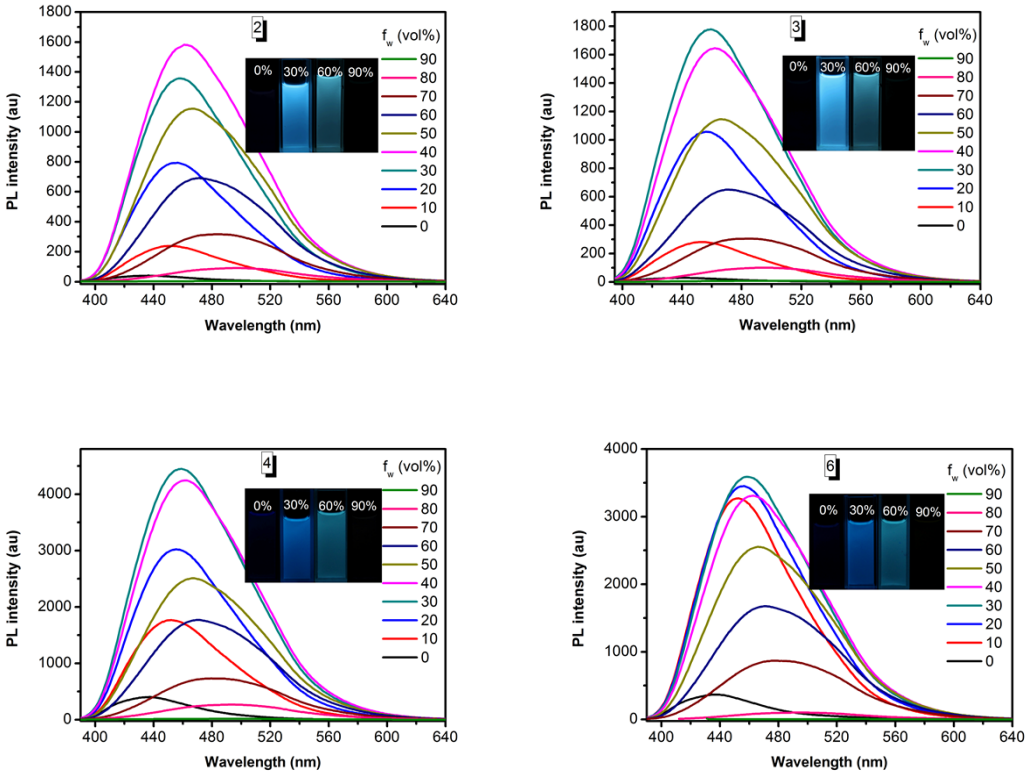

Fig. S4 PL spectra of the dilute solutions of **2**, **3**, **4**, **6** in THF/water mixtures with different water fractions (excitation wavelength = 365 nm) after water was injected for 24 hours (10 μM). The insets show the emission images of **2**, **3**, **4**, **6** in pure THF as well as solvent mixtures with 30%, 60% and 90% water contents taken under 365 nm UV illumination at room temperature (10 μM).

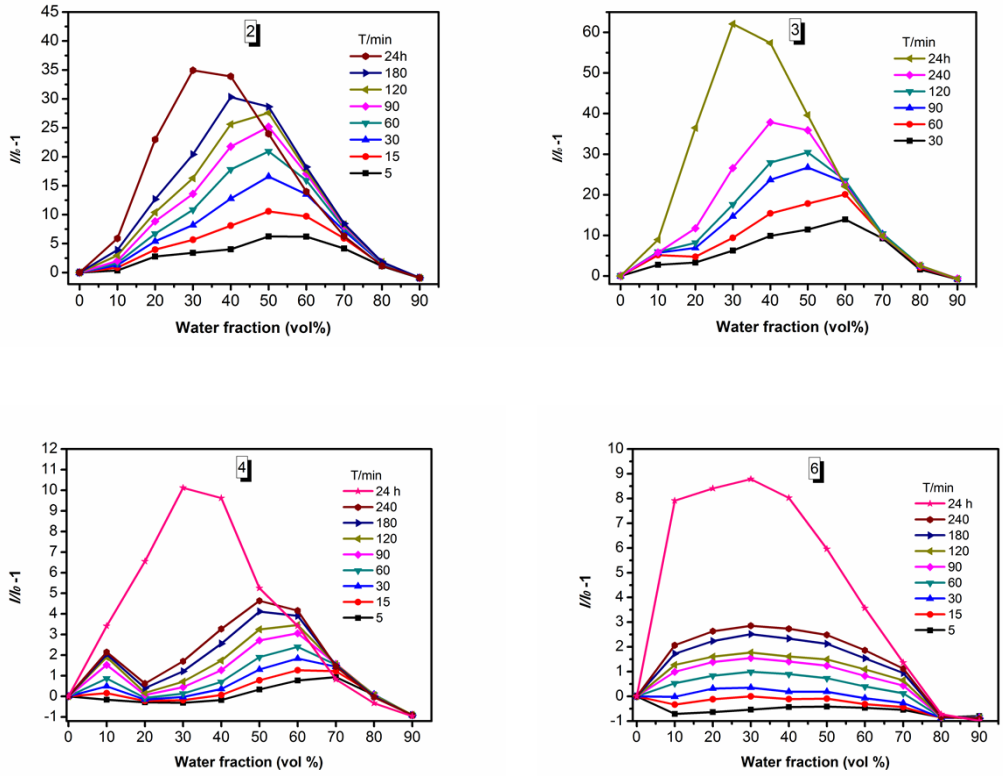

Fig. S5 Time-dependent of changes in the PL peak intensity (**2**, **3**, **4**, **6**) (10 μM).

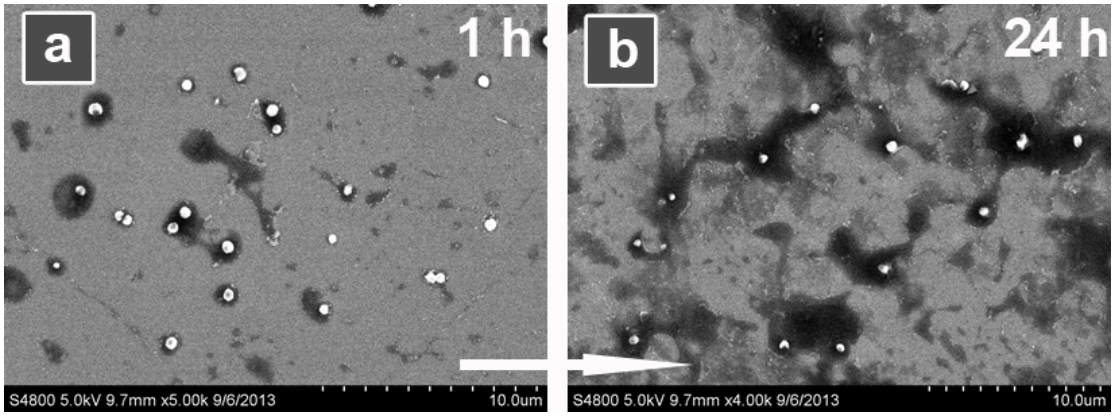

Fig. S6 SEM of **6** formed in THF/water mixtures with 90% water content after water was injected for 1 h (a) and 24 h (b).

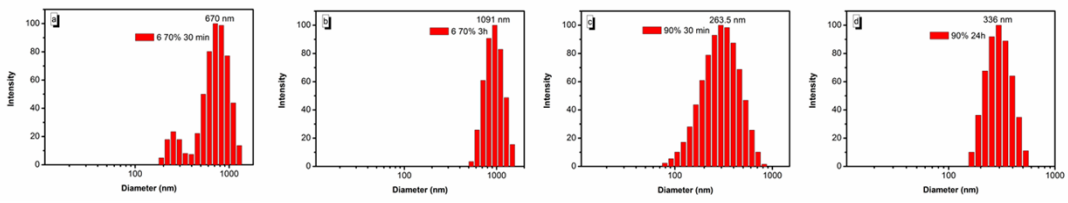

Fig. S7 Particle size distributings of **6** in THF/water mixtures with water fractions of 70% (a, 30

min and b, 3 h) and 90% (c, 30 min and b, 24 h).

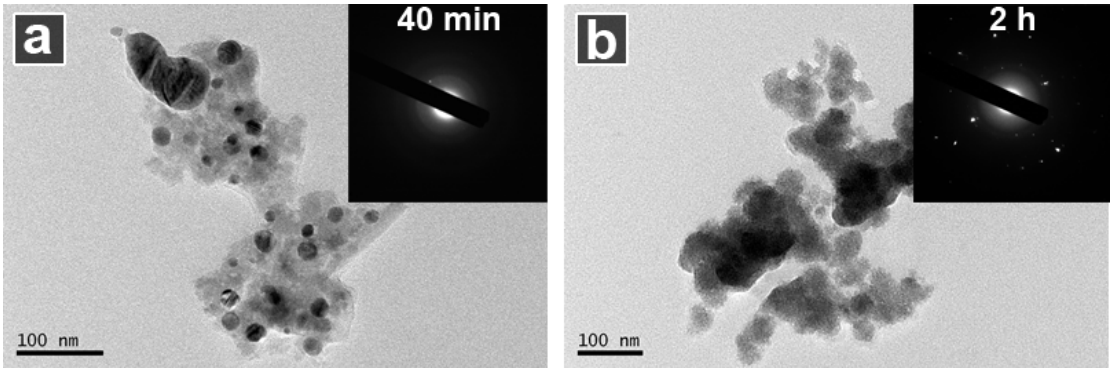

Fig. S8 TEM images and ED patterns of **1** formed in the THF/water mixtures of 50% water content after water was injected for 40 min and 2 hours, respectively.

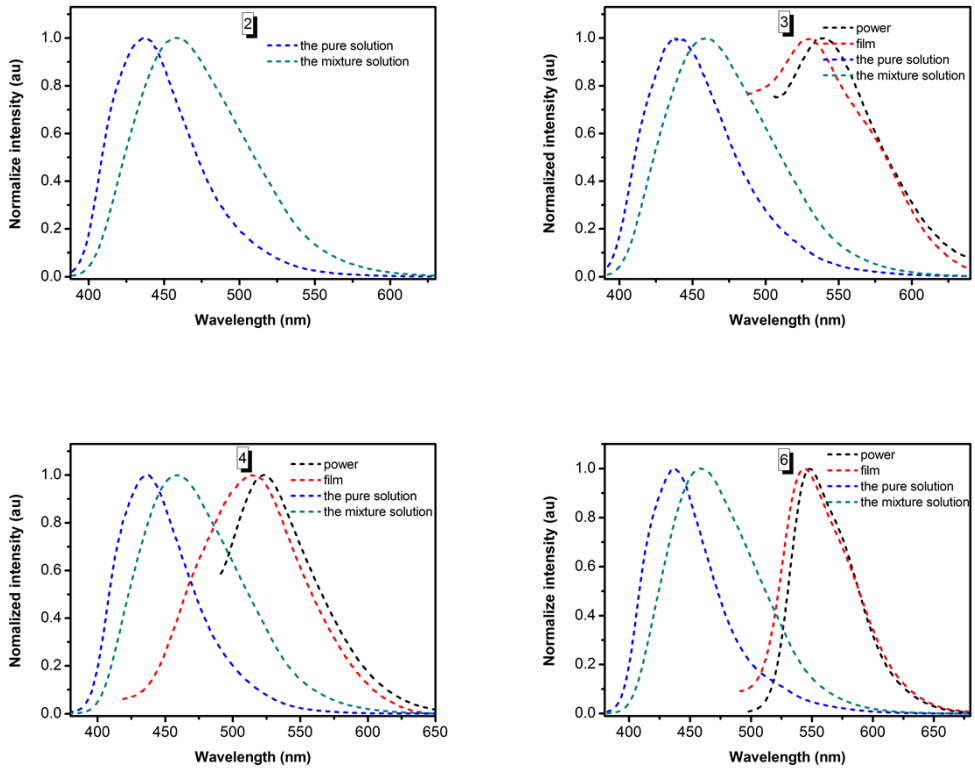

Fig. S9 PL spectra of **2**, **3**, **4**, **6** in power, film, pure THF solution and the solvent mixture with 30% water content (10 μM) after the water was injected for 24 h.

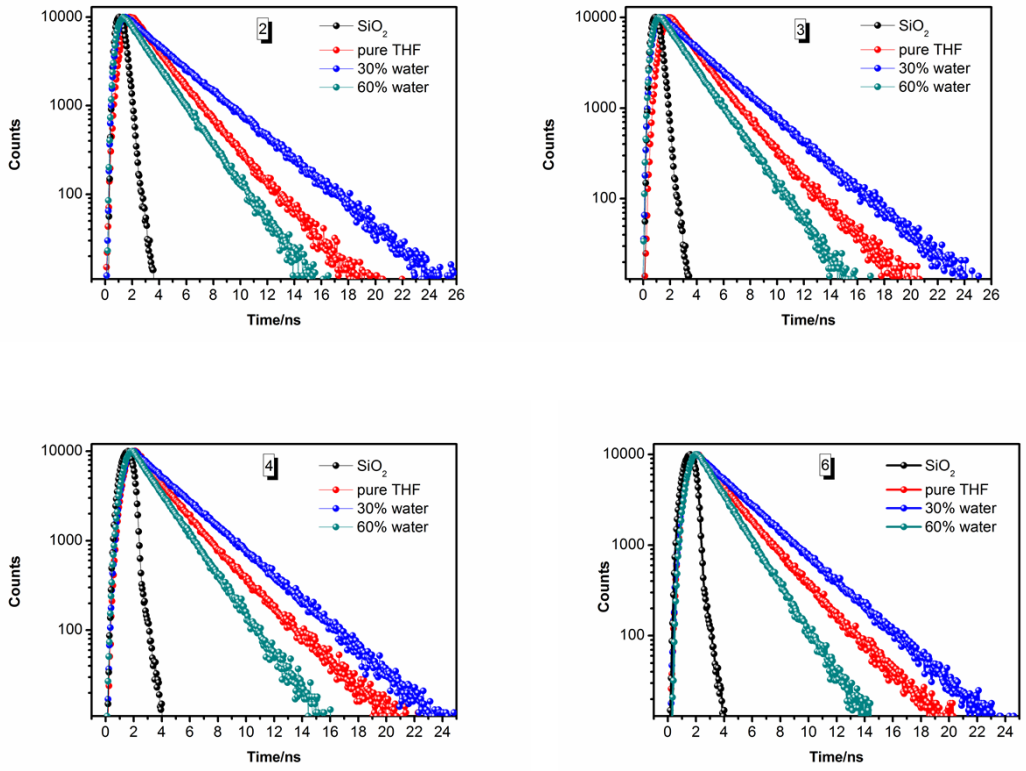

Fig. S10 PL lifetime spectra of **2**, **3**, **4**, **6** in pure solution, mixture solution with 30% water content and 60% water content (10 μM).

Table S3 Lifetime of **1-6.**

	Water/f_w	τ_1/ns	τ_2/ns	A_1	A_2	χ^2	$<\tau>$/ns
	0	1.68	2.69	0.54	0.46	1.34	2.14
1	30	0.31	3.33	0.06	0.94	1.04	3.15
	60	0.20	1.89	0.10	0.90	1.16	1.73
	0	1.54	2.61	0.48	0.52	1.13	2.10
2	30	0.36	3.38	0.05	0.95	1.04	3.22
	60	0.19	1.97	0.10	0.90	0.99	1.79
	0	1.83	3.09	0.73	0.27	1.17	2.17
3	30	0.34	3.36	0.05	0.95	1.12	3.21
	60	0.19	2.04	0.09	0.91	1.05	1.87
	0	1.76	3.05	0.66	0.34	1.12	2.20
4	30	1.44	3.24	0.09	0.91	1.38	3.07
	60	2.85	1.91	0.08	0.92	1.02	1.98
	0	1.75	3.09	0.64	0.36	1.13	2.23
5	30	1.49	3.39	0.09	0.91	1.30	3.19
	60	0.32	1.85	0.07	0.93	1.13	1.74
	0	1.71	2.78	0.52	0.48	1.20	2.22
6	30	1.42	3.18	0.09	0.91	1.32	3.02
	60	0.075	1.74	0.11	0.89	1.15	1.56

The mean lifetime $<\tau>$ was calculated according to equation $<\tau>=(A_1t_1+A_2t_2)/(A_1+A_2)$.