

Supporting Information

for

Multiswitchable photoacid-hydroxyflavylium-polyelectrolyte nano-assemblies

Alexander Zika and Franziska Gröhn

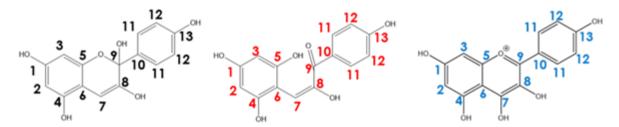
Beilstein J. Org. Chem. 2021, 17, 166–185. doi:10.3762/bjoc.17.17

¹³C NMR assignments, UV–vis and light scattering data

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 corresponds to the different molecules shown below.

3 97.7 2 100.4 9 104.8 6 107.7 7 108.4 12 117.3 11 122.5 10 137.6 4 149.2 5 153.4 8 155.2 13 156.6 1 159.0 3/3 96.9 3 97.1 2 99.8 2/2 100.3 9 105.7 6/6 107.8 7/7 109.0 12/12 117.5 12 119.4 10 122.0 11 123.0 6 128.4 11 123.0 6 135.7 10 135.7 10 135.7 11 134.7 10 135.7 11 134.7 10 135.7 11 134.7 141.7 4/4/4	Number of C-Atom	ppm
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8 155.2 13 156.6 1 159.0 3/3 96.9 3 97.1 2 99.8 2/2 100.3 9 105.7 6/6 107.8 7/7 109.0 12/12 117.5 12 119.4 10 122.0 11 123.0 6 128.4 11 129.6 11 129.6 11 134.7 10 135.7 10 135.7 10 135.7 10 135.7 10 135.7 10 135.7 10 135.7 10 135.7 12 150.1 5 153.2 5 154.1 8/8 154.9 8 155.7 13/13/13 156.7 5 158.4 <th>4</th> <th>149.2</th>	4	149.2
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6/6107.87/7109.012/12117.512119.410122.011123.06128.411129.611134.710135.710137.57141.74/4/4150.15153.25154.18/8154.98155.713/13/13156.75158.41/1/1160.39163.4	2/2	100.3
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12119.410122.011123.06128.411129.611134.710135.710137.57141.74/4/4150.15153.25154.18/8154.98155.713/13/13156.75158.41/1/1160.39163.4	7/7	109.0
10122.011123.06128.411129.611134.710135.710137.57141.74/4/4150.15153.25154.18/8154.98155.713/13/13156.75158.41/1/1160.39163.4	12/12	117.5
11123.06128.411129.611134.710135.710137.57141.74/4/4150.15153.25154.18/8154.98155.713/13/13156.75158.41/1/1160.39163.4		119.4
6128.411129.611134.710135.710137.57141.74/4/4150.15153.25154.18/8155.78155.713/13/13156.75158.41/1/1160.39163.4	10	122.0
11129.611134.710135.710137.57141.74/4/4150.15153.25154.18/8154.98155.713/13/13156.75158.41/1/1160.39163.4	11	123.0
11134.710135.710137.57141.74/4/4150.15153.25154.18/8154.98155.713/13/13156.75158.41/1/1160.39163.4	6	128.4
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7 141.7 4/4/4 150.1 5 153.2 5 154.1 8/8 154.9 8 155.7 13/13/13 156.7 5 158.4 1/1/1 160.3 9 163.4	10	135.7
4/4/4150.15153.25154.18/8154.98155.713/13/13156.75158.41/1/1160.39163.4	10	137.5
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5 154.1 8/8 154.9 8 155.7 13/13/13 156.7 5 158.4 1/1/1 160.3 9 163.4	4/4/4	150.1
8/8 154.9 8 155.7 13/13/13 156.7 5 158.4 1/1/1 160.3 9 163.4		153.2
8 155.7 13/13/13 156.7 5 158.4 1/1/1 160.3 9 163.4		
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5 158.4 1/1/1 160.3 9 163.4	13/13/13	156.7
9 163.4	5	
9 163.4	1/1/1	160.3
		163.4
	9	173.9



Scheme S1: Left: Flavy in form of **B**. Middle: Flavy in form of **Cc**. Right: Flavy in form of **B**₄.

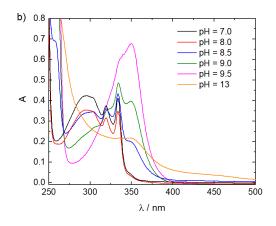


Figure S1: UV–vis of the photoacid 1N36S depending on the pH value of the solution.

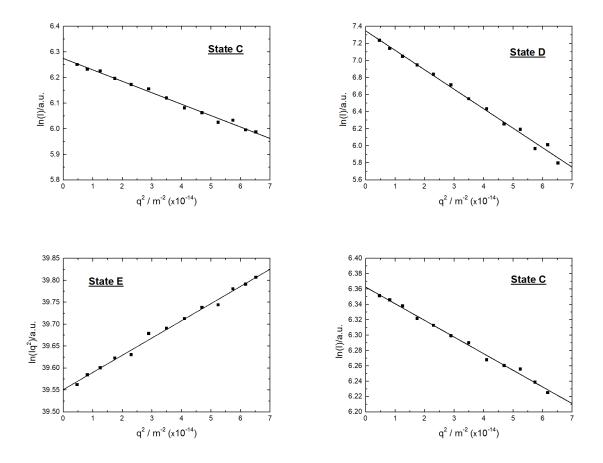


Figure S2: Static light scattering data from the assemblies of cycle II. Above left: **C**: pH 2.0. Above right: **D**: pH 5.0. Bottom left: **E**: Irradiation at λ = 300 nm. Bottom right: **C**: Dark and acidic environment.

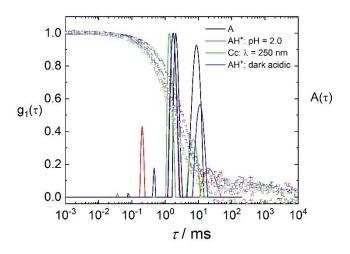


Figure S3: Electric field autocorrelation function $g_1(\tau)$ and distribution of relaxation times $A(\tau)$ at a scattering angle of $\Theta = 90^\circ$ for the assemblies with the building blocks Flavy and PAA at a charge ratio of I = 0.5.

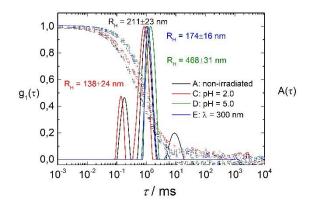


Figure S4: Electric field autocorrelation function $g_1(\tau)$ and distribution of relaxation times $A(\tau)$ at a scattering angle of $\Theta = 90^\circ$ for the assemblies at a concentration ratio of I = 4.0.