Supplementary Material (ESI) for New Journal of Chemistry

Electronic Supplementary Information (ESI)

A Simplicity-Guided Approach toward Molecular Set-Reset Memories

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Contents:

Experimental Details

Photochromic compound **1** was synthesized by following a literature procedure (S. L. Gilat, S. H. Kawai and J.-M. Lehn, *Chem. Eur. J.*, 1995, **1**, 275-284). For the spectroscopic measurements toluene was used as the solvent, and deoxygenation of the samples was not performed. The absorption measurements were performed using a CARY 4000 UV/Vis spectrometer. In the photoisomerization experiments the broadband visible light was generated by a 1000 W Xe/Hg lamp running at 450 W. The light from the Xe/Hg lamp was filtered by two hot mirrors (each with A = 1.8 at λ = 900 nm) to reduce the IR intensity. A yellow glass filter (A > 1 at λ < 415 nm) was used to cut the shorter-wavelength light. The resulting light power density was ≈100 mWcm^{-2}. A UVP UV lamp (model UVM-57, ≈1.5 mWcm^{-2}) was used to provide the λ = 302 nm light.

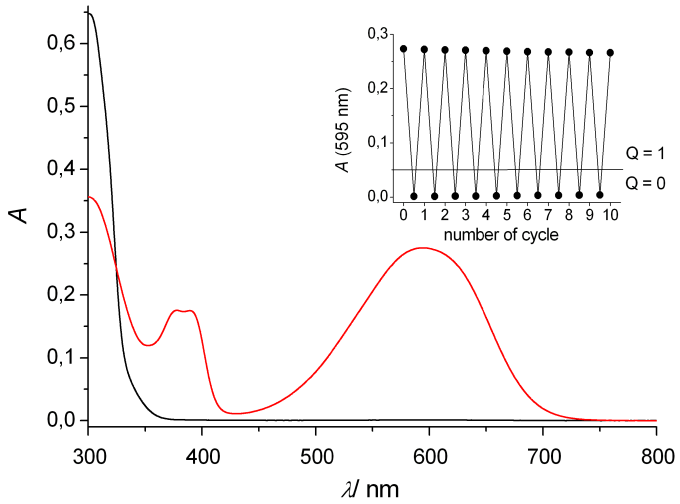

Figure S1. Absorption spectra of **1o** (black line) and **1c** (red line) in toluene solution. The inset shows various switching cycles by alternate application of *R* and *S* inputs. Initially the system is in the *Q* = 1 state.

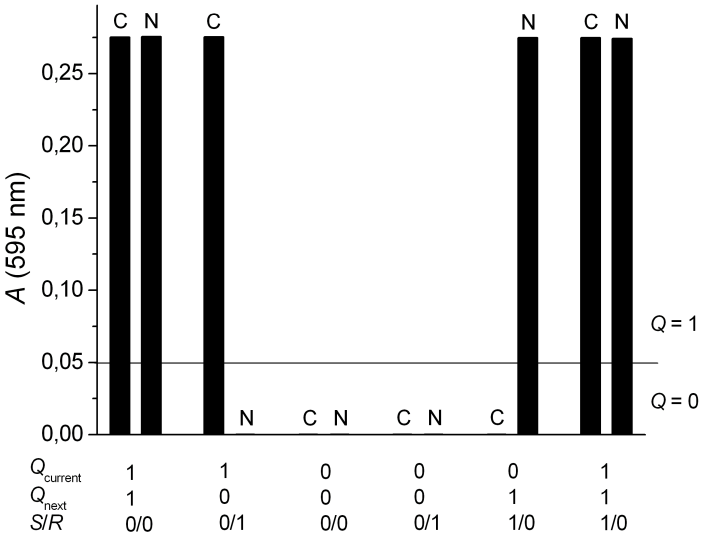

Figure S2. Switching behavior of photochromic compound **1** (*ca*. 21 μM in toluene) in terms of an S–R latch (C: current state $Q_{current}$, N: next state Q_{next}, *S*: λ_{exc} = 302 nm, *R*: λ_{exc} > 450 nm). The absorbances for the six entries in the middle of the graph coincide with the baseline of the spectrum.