Raman scattering and FT-IR spectroscopic studies on Dithienylethene Switches – towards non-destructive optical readout

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Supporting Online Information

IR data for compounds 1-4F and 1-12H was obtained (SOM-figure 1-16). Due to the low Photostationary states achievable for 9-10H, only the open form IR data is shown. For other compounds spectra were obtained starting from the open (blue) and subsequent irradiation with UV light ($\lambda = 313$ nm). Also, the closed form could be obtained by irradiation of acetonitrile solutions and deposition on KBr (green).



SOM Figure 1 FT-IR for compound **1F**. blue = open from, red = PSS starting from open form, green = prior irradiation to the closed form in acetonitrile and subsequent casting on KBr.



SOM Figure 2 FT-IR for compound **2F**. blue = open from, red = PSS starting from open form, green = prior irradiation to the closed form in acetonitrile and subsequent casting on KBr.



SOM Figure 3 FT-IR for compound **3F**. blue = open from, red = PSS starting from open form, green = prior irradiation to the closed form in acetonitrile and subsequent casting on KBr.



SOM Figure 4 FT-IR for compound **4F**. blue = open from, red = PSS starting from open form, green = prior irradiation to the closed form in acetonitrile and subsequent casting on KBr.



SOM Figure 5 FT-IR for compound **1H**. blue = open from, red = PSS starting from open form, green = prior irradiation to the closed form in acetonitrile and subsequent casting on KBr.



SOM Figure 6 FT-IR for compound **2H**. blue = open from, red = PSS starting from open form, green = prior irradiation to the closed form in acetonitrile and subsequent casting on KBr.



SOM Figure 7 FT-IR for compound **3H**. blue = open from, red = PSS starting from open form, green = prior irradiation to the closed form in acetonitrile and subsequent casting on KBr.



SOM Figure 8 FT-IR for compound **4H**. blue = open from, red = PSS starting from open form, green = prior irradiation to the closed form in acetonitrile and subsequent casting on KBr.



SOM Figure 9 FT-IR for compound **5H**. blue = open from, red = PSS starting from open form, green = prior irradiation to the closed form in acetonitrile and subsequent casting on KBr.



SOM Figure 10 FT-IR for compound **6H**. blue = open from, red = PSS starting from open form, green = prior irradiation to the closed form in acetonitrile and subsequent casting on KBr.



SOM Figure 11 FT-IR for compound **7H**. blue = open from, red = PSS starting from open form, green = prior irradiation to the closed form in acetonitrile and subsequent casting on KBr.



SOM Figure 12 FT-IR for compound **8H**. blue = open from, red = PSS starting from open form, green = prior irradiation to the closed form in acetonitrile and subsequent casting on KBr.



SOM Figure 13 FT-IR for compound 9Ho.



SOM Figure 15 FT-IR for compound **11H**. blue = open from, red = PSS starting from open form, green = prior irradiation to the closed form in acetonitrile and subsequent casting on KBr.



SOM Figure 16 FT-IR for compound **12H**. blue = open from, red = PSS starting from open form, green = prior irradiation to the closed form in acetonitrile and subsequent casting on KBr.

RAMAN data for 1-4Fo and 1-4 & 6-10Ho for the open form in the solid state.



SOM Figure 18 2F on solid state Raman



SOM Figure 19 3F on solid state Raman



SOM Figure 20 4F on solid state Raman







SOM Figure 22 2H on solid state Raman



Raman Shift (cm-1)

SOM Figure 23 3H on solid state Raman



SOM Figure 24 4H on solid state Raman



SOM Figure 25 6H on solid state Raman



SOM Figure 26 7H on solid state Raman



SOM Figure 27 8H on solid state Raman



SOM Figure 28 9H on solid state Raman



SOM Figure 29 10H on solid state Raman



SOM Figure 30 Raman spectra of **2Fo** to **2Fc** (irradiation at 313 nm, λ_{exc} 785 nm, 6 * 20 s accumulations)



SOM Figure 31Solid state and dilute solution Raman spectra (in acetonitrile, solvent subtracted) of **2Hc** and **2Fc**, λ_{exc} 785 nm, 6 * 20 s accumulations)