Supplementary Information

**Development of a light-responsive fluorinated poly(arylene ether) copolymer containing azobenzene groups in the main polymer chain**

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Figure S1. The GPC curve of Azo-coFPAE.

Figure S2. (a) $^1$H NMR (top) and $^{19}$F NMR (bottom) spectra of Azo-coFPAE; (b) FTIR spectra of Azo-coFPAE (spectrum 1) and azo-based monomer (spectrum 2); (c) Raman spectrum of Azo-coFPAE.
Figure S3. a) Hydrogen-bonded complex of monomer 2 and dimethylacetamide (DMAc); b) FTIR spectra of the monomer 2/DMAc mixture (spectrum 1), azo-based monomer 2 in the solid state (spectrum 2) and pure DMAc (spectrum 3).