

Supporting Information

Chain folding in main-chain liquid crystalline polyesters: from π - π stacking toward shape memory

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1. ^1H NMR spectrum of 4,4'-bis(6-hydroxyhexyloxy)biphenyl (BHBBP)

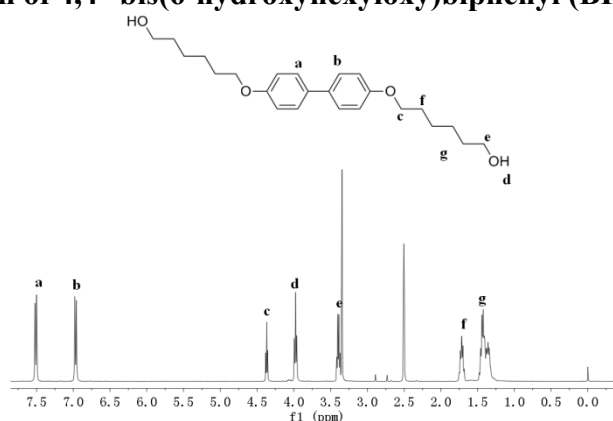


Figure S1 ^1H NMR spectrum of 4,4'-bis(6-hydroxyhexyloxy)biphenyl (BHBBP).

2. ^1H NMR spectra of the polyesters

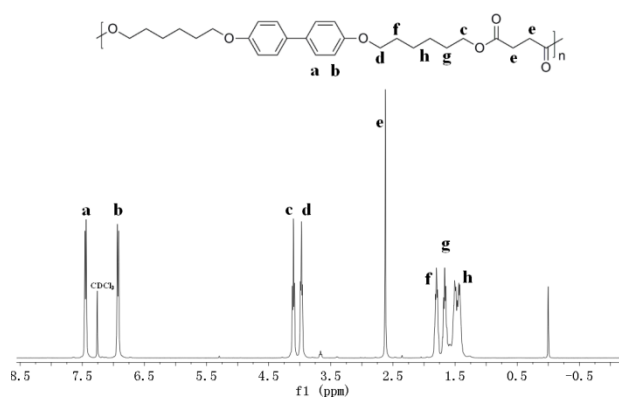


Figure S2 ^1H NMR spectrum of PBDS.

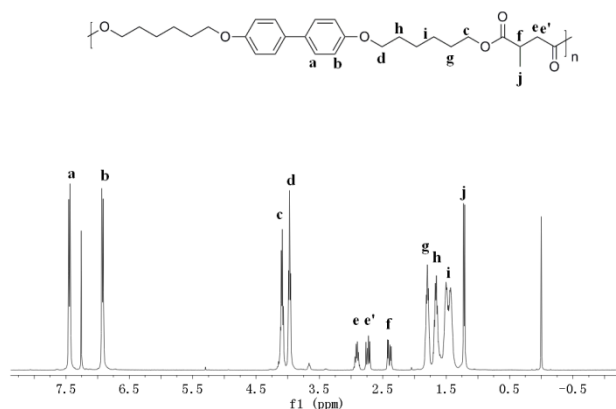


Figure S3 ^1H NMR spectrum of PBDMS.

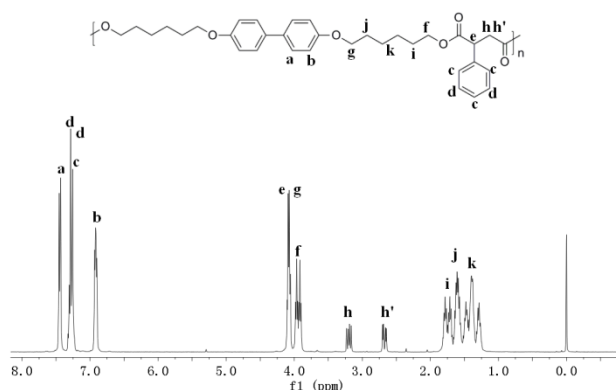


Figure S4 The ^1H NMR spectrum of PBDPS.

3. Shape memories of PBDS and PBDMS

For comparing the shape-memory behaviors of these polyesters, The experimental curves of shape-memory effect for PBDS and PBDMS are shown in Fig. S5. As shown in the stress-strain curve, PBDS is very brittle even at the temperature close to its isotropic transition, therefore it could not fulfil the shape-memory experiment. As for PBDMS, it exhibited excellent shape fixity; however, its recovery ratio is only 30 %. Compared to PBDS, PBDMS showed certain ability for shape memory, due to its chain folding configuration. However, the shape recovery of PBDMS was not satisfied because of the absence of π - π interaction acting as a physical netpoint.

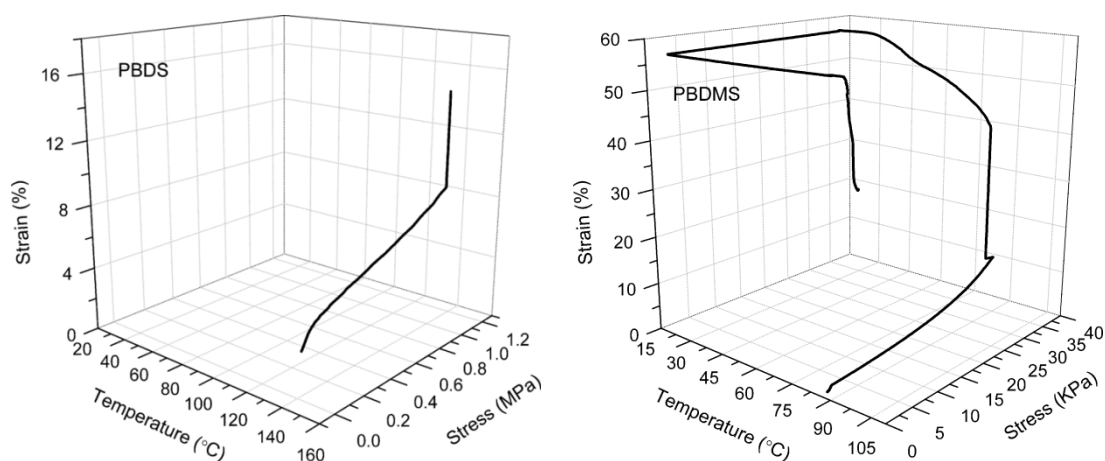


Figure S5 3D diagram of one-way shape memory cycle for PBDS (left) and PBDMS (right).

4. Real time movie picturing the shape memory effect of PBDPS

Please check the multimedia document (Shape Memory of PBDPS.mp4) on-line (Shape deformed at 50 °C and recovered at 75 °C in water bath).