

Electronic Supplementary Information (ESI)

Bulk and solution properties of thermo-responsive rod-coil block polymer based on poly(*N*-isopropylacrylamide)

Peng Liu^{a,b}, Jiexing Liang^a, Shen Chen^a and Hailiang Zhang*^a

^a Key laboratory of polymeric materials & application technology of Hunan Province, key laboratory of advanced functional polymer materials of colleges of Hunan Province, College of Chemistry, Xiangtan University, Xiangtan, Hunan, 411105, China. Email: zh11965@xtu.edu.cn

^b College of Chemistry and Chemical Engineering, Qujing Normal University, Qujing, Yunnan, 655011, China. Email: liupengxj@gmail.com

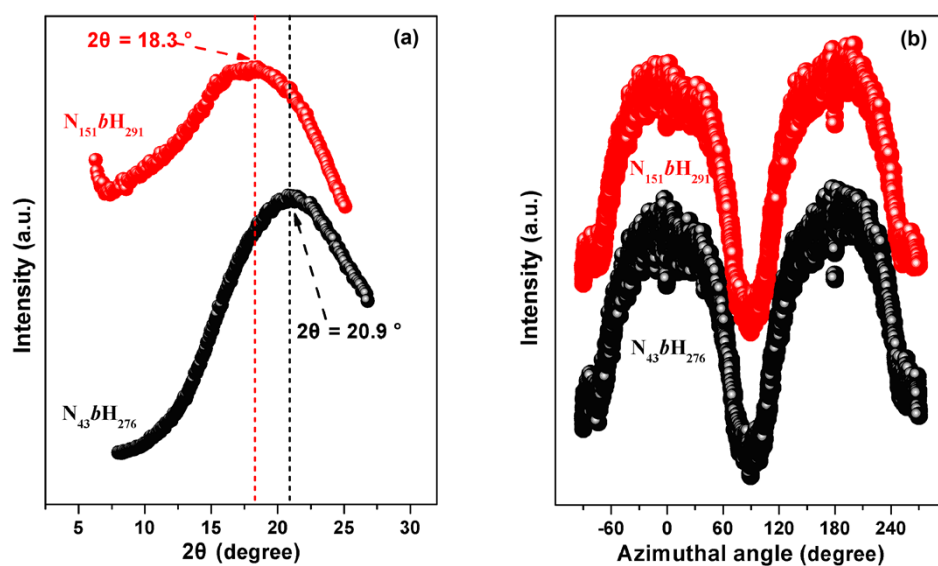


Fig.S1 The intensity profiles (a) are along the meridian obtained from Fig.7. The azimuthal scanning profiles (b) of the high 2θ angle diffraction along the meridian detected from Fig.7.

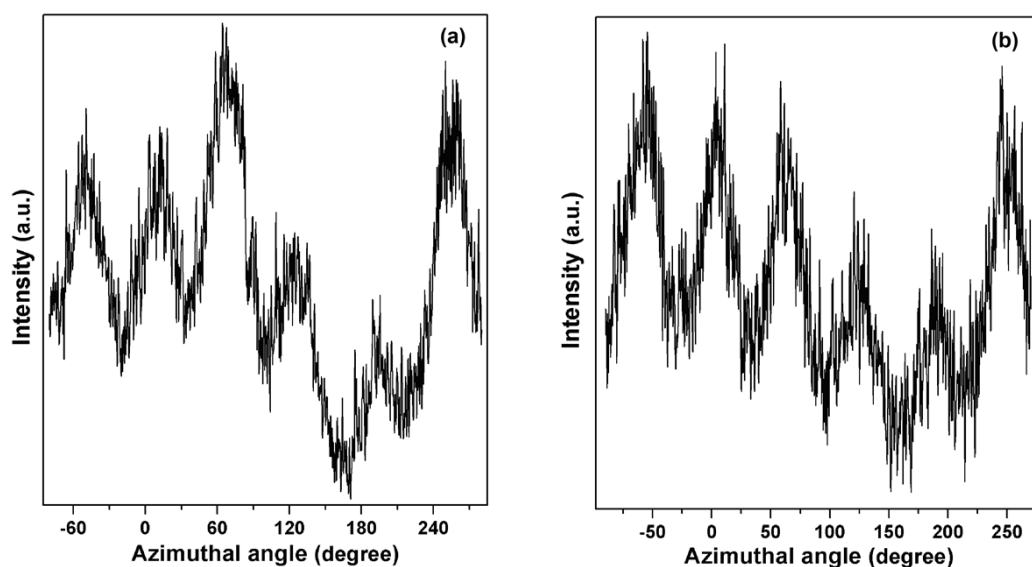


Fig.S2 The X-ray incident beam is parallel to the shear direction. The azimuthal profiles (a) and (b) obtained from Fig.8a and Fig.8b, respectively.

Table S1. Elemental Analysis of the PNIPAm-*b*-PHIPPVTAs

| Sample | Formula | Elemental analysis (%) ^a | | | | |
|--|--|-------------------------------------|-------|------|-------|------|
| | | | C | H | N | S |
| N ₄₃ | C ₂₆₅ H ₄₈₅ N ₄₃ O ₄₅ S ₃ | Calcd. | 62.53 | 9.60 | 11.83 | 1.89 |
| | | Found | 62.07 | 9.69 | 11.56 | 1.84 |
| N ₄₃ <i>b</i> H ₂₈ | C ₉₃₇ H ₁₃₂₅ N ₉₉ O ₂₁₃ S ₃ | Calcd. | 64.38 | 7.64 | 7.93 | 0.55 |
| | | Found | 63.22 | 7.91 | 7.76 | 0.51 |
| N ₄₃ <i>b</i> H ₇₅ | C ₂₃₀₅ H ₃₀₃₅ N ₂₁₃ O ₅₅₅ S ₃ | Calcd. | 64.83 | 7.16 | 6.99 | 0.23 |
| | | Found | 63.66 | 7.28 | 7.20 | 0.21 |
| N ₄₃ <i>b</i> H ₉₅ | C ₂₅₄₅ H ₃₃₃₅ N ₂₃₃ O ₆₁₅ S ₃ | Calcd. | 64.86 | 7.13 | 6.92 | 0.20 |
| | | Found | 65.41 | 7.24 | 6.87 | 0.21 |
| N ₄₃ <i>b</i> H ₁₃₄ | C ₃₄₈₁ H ₄₅₀₅ N ₃₁₁ O ₈₄₉ S ₃ | Calcd. | 64.94 | 7.05 | 6.77 | 0.15 |
| | | Found | 64.74 | 7.15 | 6.58 | 0.13 |
| N ₄₃ <i>b</i> H ₁₉₀ | C ₄₈₂₅ H ₆₁₈₅ N ₄₂₃ O ₁₁₈₅ S ₃ | Calcd. | 64.99 | 6.99 | 6.64 | 0.11 |
| | | Found | 64.07 | 7.12 | 6.18 | 0.13 |
| N ₄₃ <i>b</i> H ₂₀₃ | C ₅₁₃₇ H ₆₅₇₅ N ₄₄₉ O ₁₂₆₃ S ₃ | Calcd. | 65.00 | 6.98 | 6.63 | 0.11 |
| | | Found | 63.11 | 6.57 | 6.89 | 0.11 |
| N ₄₃ <i>b</i> H ₂₇₆ | C ₆₈₈₉ H ₈₇₆₅ N ₅₉₅ O ₁₇₀₁ S ₃ | Calcd. | 65.04 | 6.94 | 6.55 | 0.10 |
| | | Found | 66.19 | 7.61 | 7.96 | 0.07 |
| N ₁₅₁ | C ₉₁₃ H ₁₆₇₃ N ₁₅₁ O ₁₅₃ S ₃ | Calcd. | 63.35 | 9.74 | 12.22 | 0.56 |
| | | Found | 61.89 | 9.87 | 12.06 | 0.52 |
| N ₁₅₁ <i>b</i> H ₁₉ | C ₁₃₆₉ H ₂₂₄₃ N ₁₈₉ O ₂₆₇ S ₃ | Calcd. | 63.93 | 8.79 | 10.29 | 0.37 |
| | | Found | 64.58 | 8.05 | 10.58 | 0.32 |
| N ₁₅₁ <i>b</i> H ₉₀ | C ₃₀₇₃ H ₄₃₇₃ N ₃₃₁ O ₆₉₃ S ₃ | Calcd. | 64.60 | 7.71 | 8.11 | 0.17 |
| | | Found | 63.15 | 8.36 | 7.69 | 0.16 |
| N ₁₅₁ <i>b</i> H ₁₄₆ | C ₄₄₁₇ H ₆₀₅₃ N ₄₄₃ O ₁₀₂₉ S ₃ | Calcd. | 64.76 | 7.45 | 7.57 | 0.12 |
| | | Found | 63.21 | 8.01 | 6.99 | 0.12 |
| N ₁₅₁ <i>b</i> H ₁₇₁ | C ₅₀₁₇ H ₆₈₀₃ N ₄₉₃ O ₁₁₇₉ S ₃ | Calcd. | 64.81 | 7.37 | 7.43 | 0.10 |
| | | Found | 63.58 | 7.58 | 6.85 | 0.12 |
| N ₁₅₁ <i>b</i> H ₂₉₁ | C ₇₈₉₇ H ₁₀₄₀₃ N ₇₃₃ O ₁₈₉₉ S ₃ | Calcd. | 64.93 | 7.18 | 7.03 | 0.07 |
| | | Found | 65.45 | 7.26 | 6.66 | 0.06 |

^a The elemental analyses of polymers were measured by Vario EL III.