

# Supporting Information

## Probe diffusion during sol-gel transition of a radical polymerization system with isorefractive dynamic light scattering

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### Correction of delay time

The relative distance from the gel point ( $\varepsilon$ ) is defined as:

$$\varepsilon \equiv \frac{t - t_g}{t_g} \quad (\text{S1})$$

where  $t$  is the reaction time and  $t_g$  is the gel point. The delay time observed in PNIPAM gel system is  $\varepsilon = -0.2$ . Thus, the delay time ( $t_d$ ) is

$$\begin{aligned} \varepsilon &= \frac{t_d - t_g}{t_g} = -0.2 \\ t_d &= 0.8t_g \end{aligned} \quad (\text{S2})$$

The reaction starts when  $t = t_d$  and we correct this time as 0. Thus, the corrected relative distance from the gel point ( $\varepsilon'$ ) is

$$\varepsilon' = \frac{(t - t_d) - (t_g - t_d)}{t_g - t_d} = \frac{t - t_g}{t_g - t_d} \quad (\text{S3})$$

By substituting eq (S2) into eq (S3), we find the following relation.

$$\varepsilon' = \frac{t - t_g}{0.2t_g} = 5\varepsilon \quad (\text{S4})$$