Electronic Supplementary Material (ESI) for CrystEngComm
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Enhanced Photochromism of chromen-based colorants near Silver Nanorods in Sol-Gel matrix

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Supplementary Materials:

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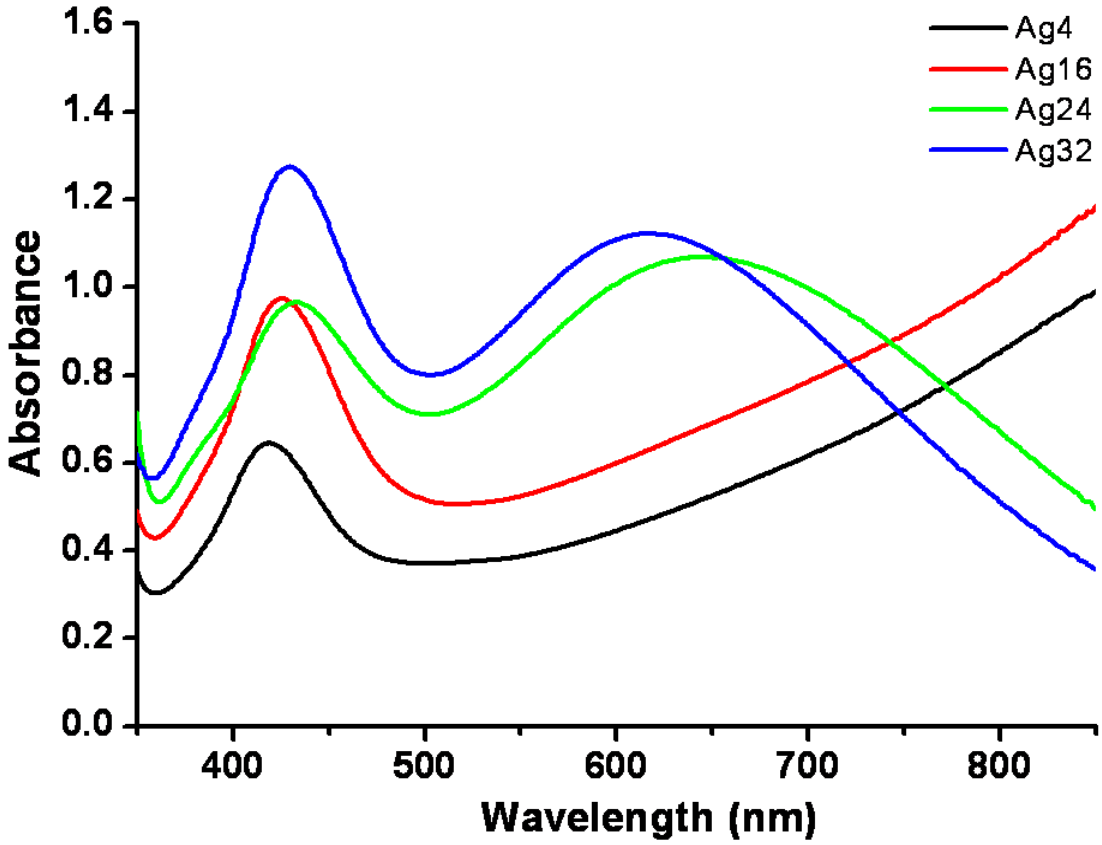

Fig. S1 The absorption of **Ag4** (black), **Ag16** (red), **Ag24** (green), and **Ag32** (blue) in water.

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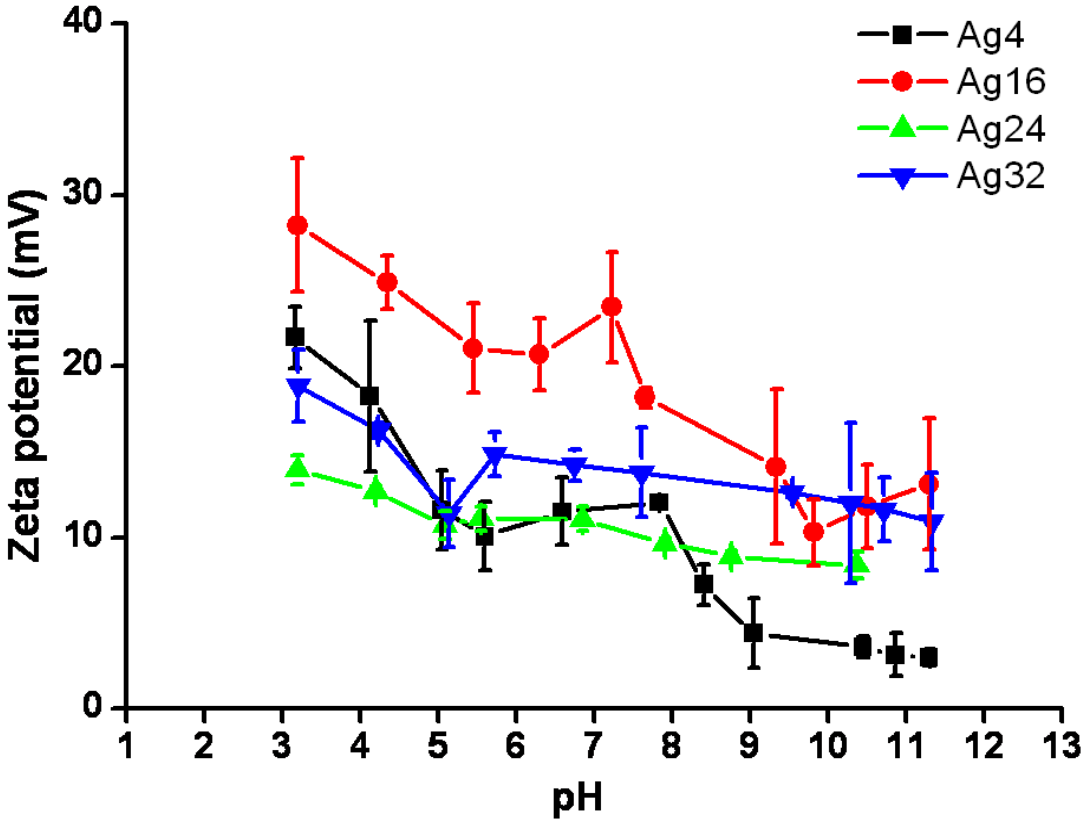

Fig. S2 The zeta potential of **Ag4** (black), **Ag16** (red), **Ag24** (green), and **Ag32** (blue) as a function of pH. The error bars indicated the standard deviation of at least four measurements.

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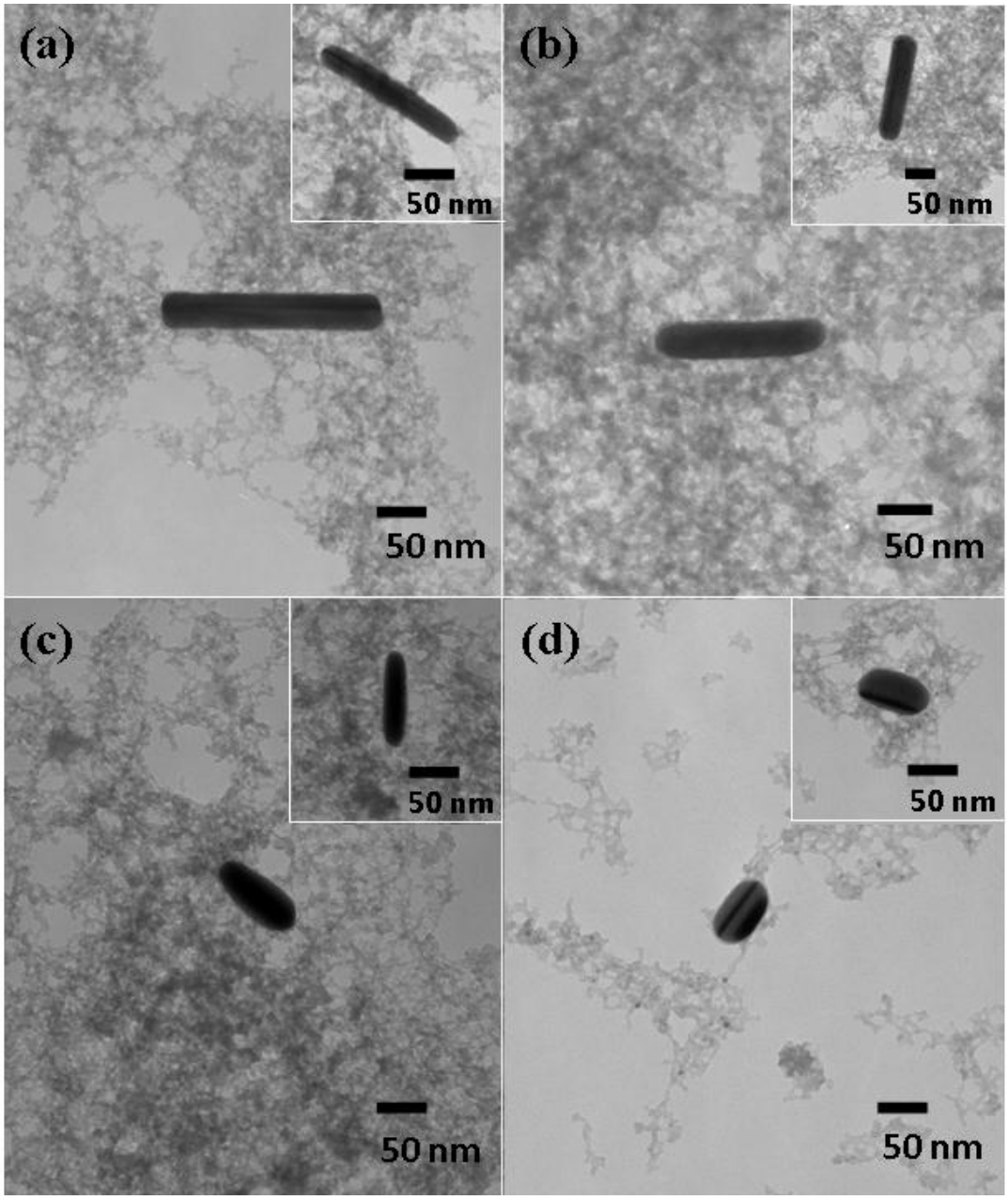

Fig. S3 Representative images of (a) **Ag4**, (b) **Ag16**, (c) **Ag24**, and (d) **Ag32** re-suspended in ethanol.

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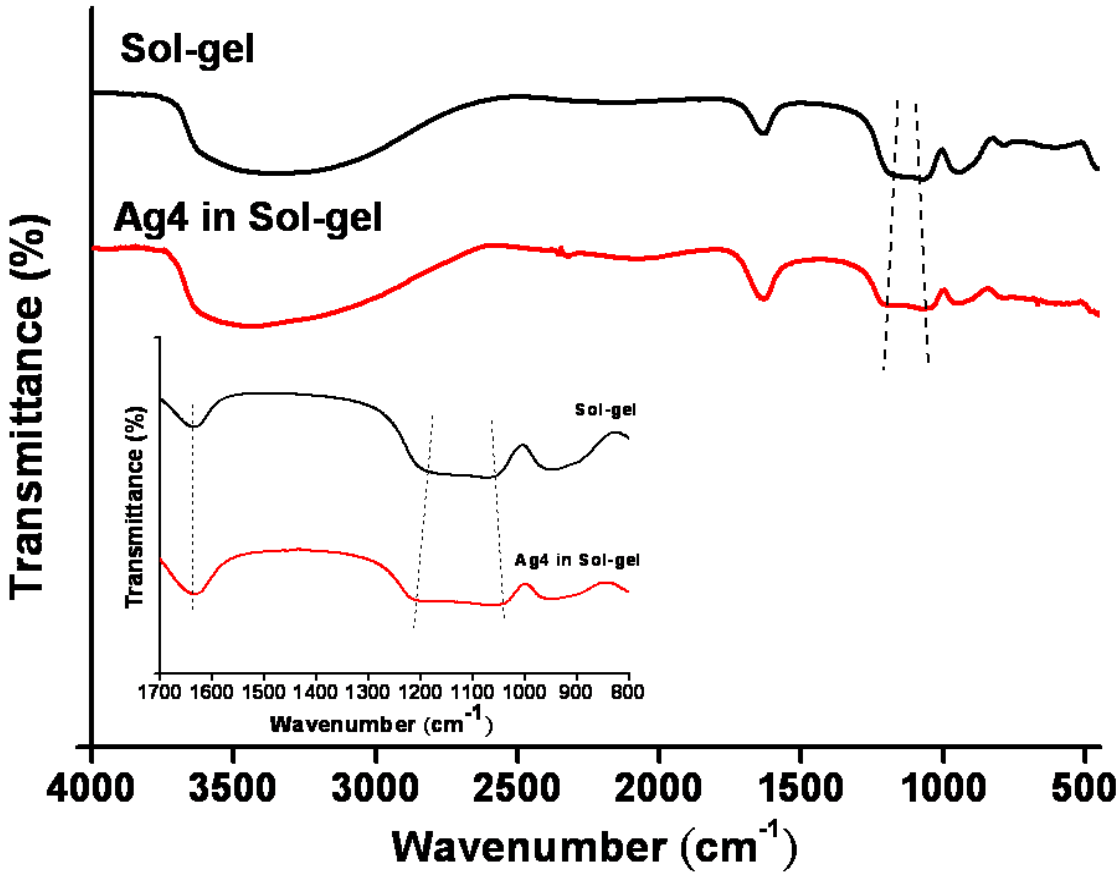

Fig. S4 FT-IR spectra of sol-gel matrix and **Ag4** in sol-gel matrix**.** Inset: FT-IR spectra of sol-gel matrix and **Ag4** in sol-gel matrix from 800 to 1700 cm^{-1}. Note FT-IR spectra of the sol after addition of H_2O for 7 hours.

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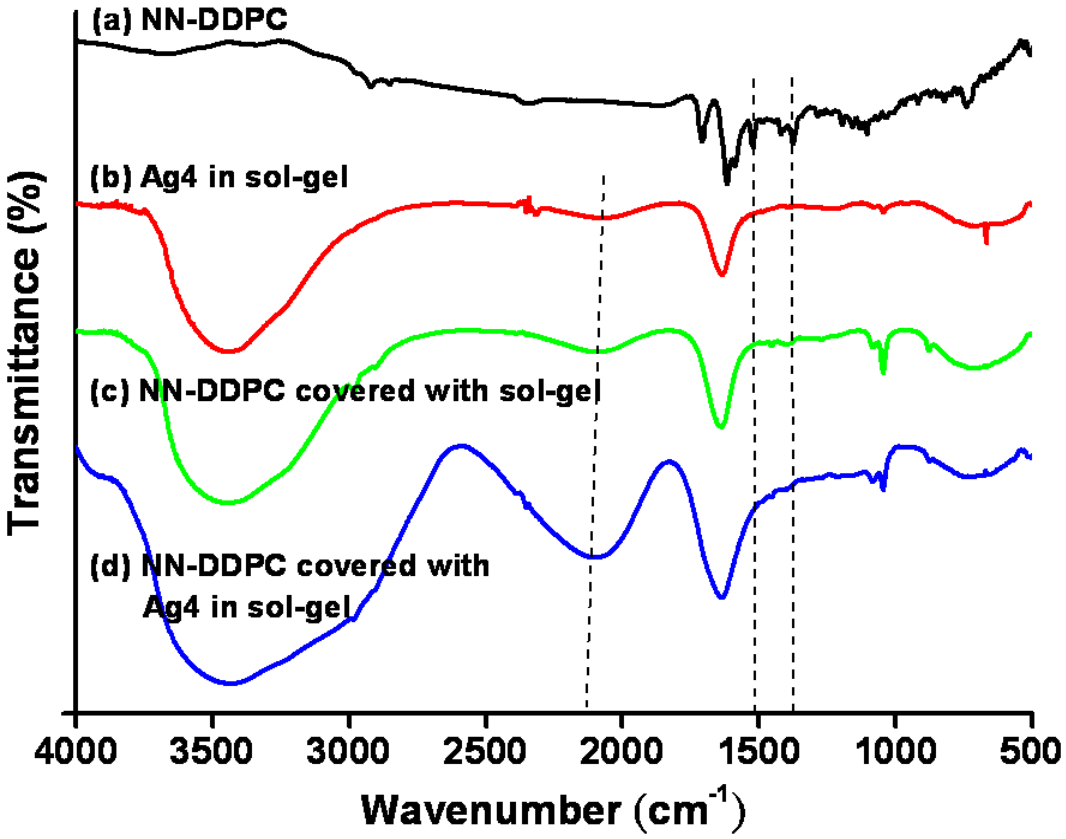

Fig. S5 FT-IR spectra (a) **NN-DDPC**, (b) **Ag4** in sol-gel matrix, (c) **NN-DDPC** covered with sol-gel matrix, and (d) **NN-DDPC** covered with **Ag4** in sol-gel matrix. Note FT-IR spectra of the sol after addition of H_2O for 16 hours.

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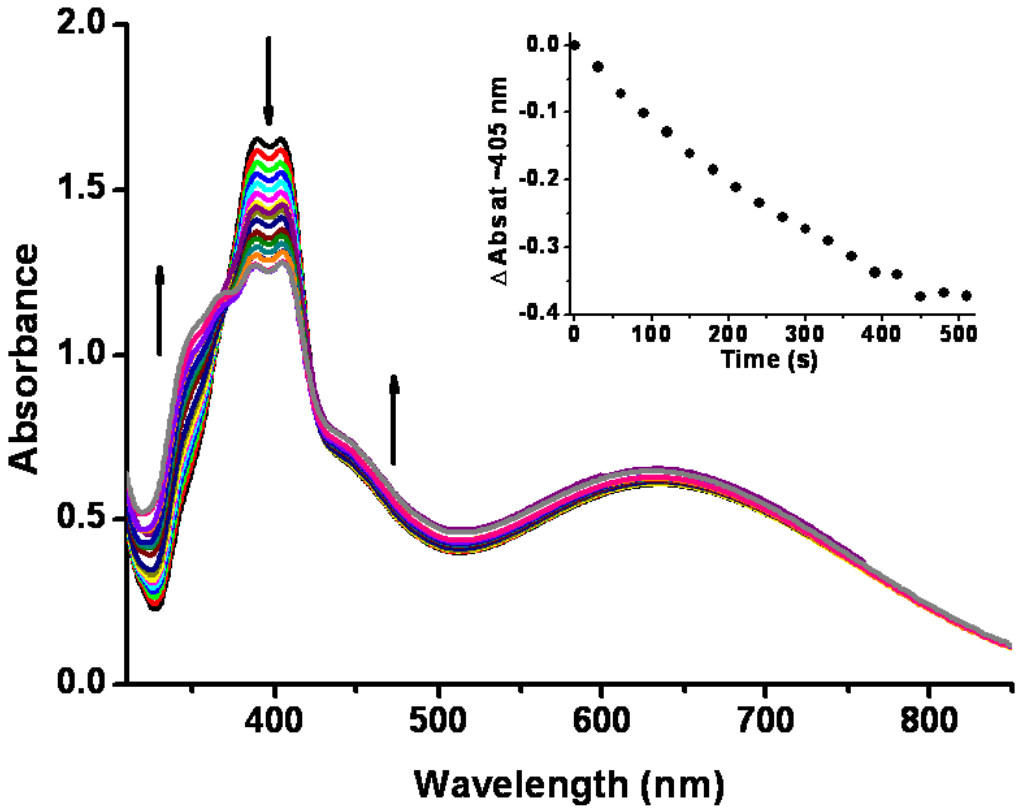

Fig. S6 UV-vis absorption spectra of **NN-DDPC** mixed with **Ag24** in acetonitrile/H_2O (10:90, v/v) at room temperature with different exposure times, 0 to 510 s, with increments of 30s under continuous irradiation at 365 nm.

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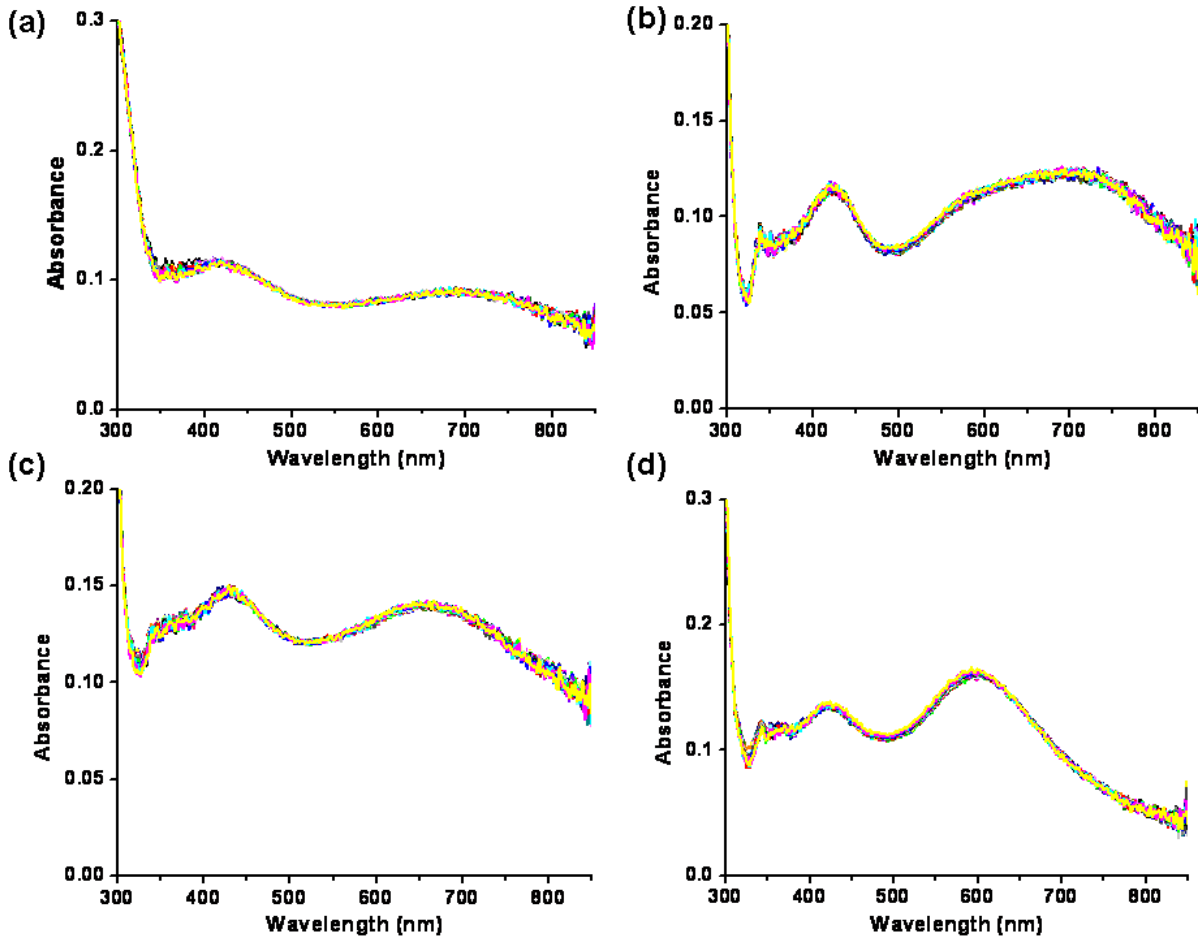

Fig. S7 Absorption of (a) **Ag4**, (b) **Ag16**, (c) **Ag24**, and (d) **Ag32** in sol-gel under 365 nm excitation as a function of exposure time (0 to 60 minutes, 2-minute increments)

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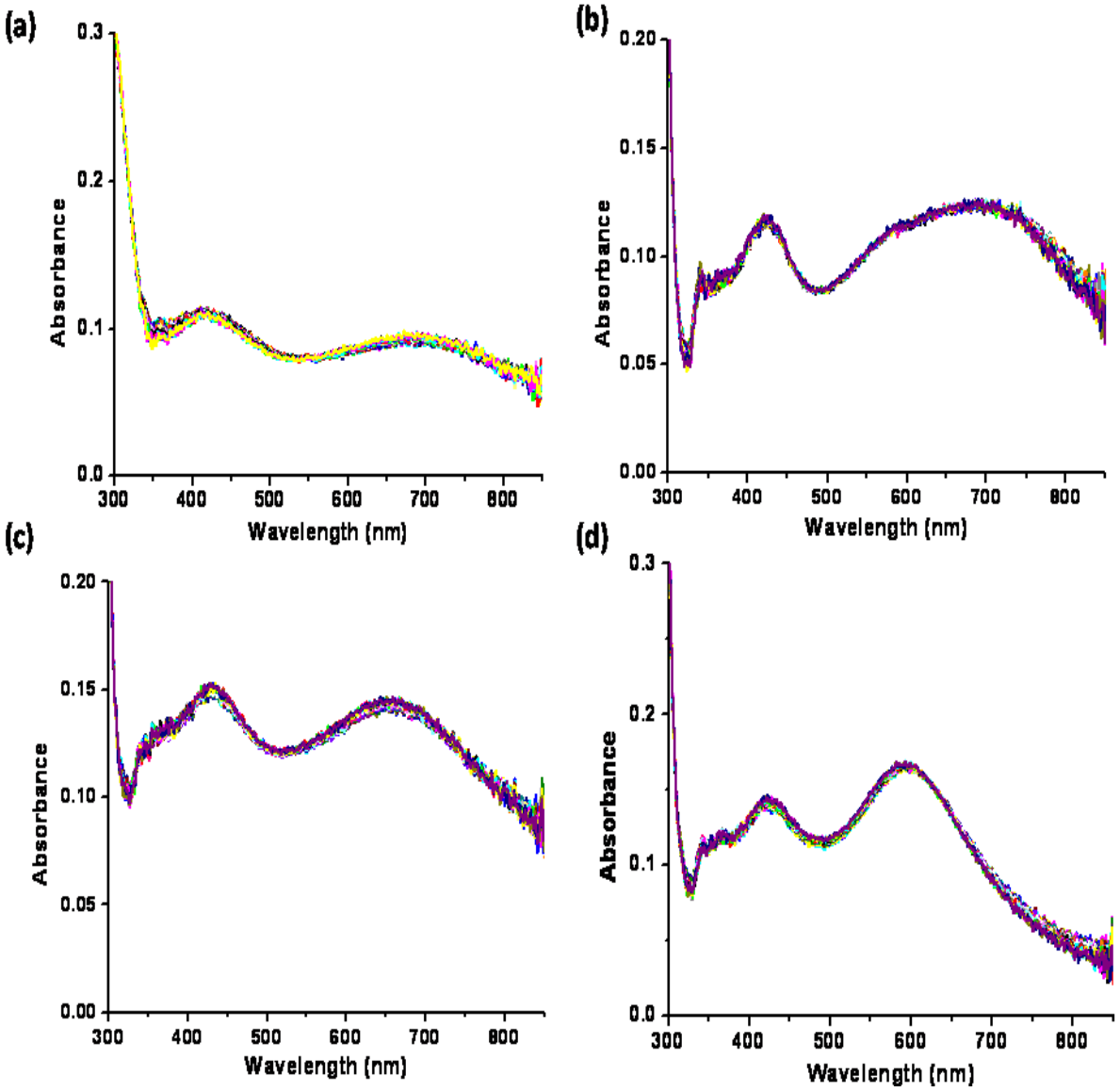

Fig. S8 Absorption of (a) **Ag4**, (b) **Ag16**, (c) **Ag24**, and (d) **Ag32** in sol-gel under 510 nm excitation as a function of exposure time (0 to 60 minutes, 2-minute increments)

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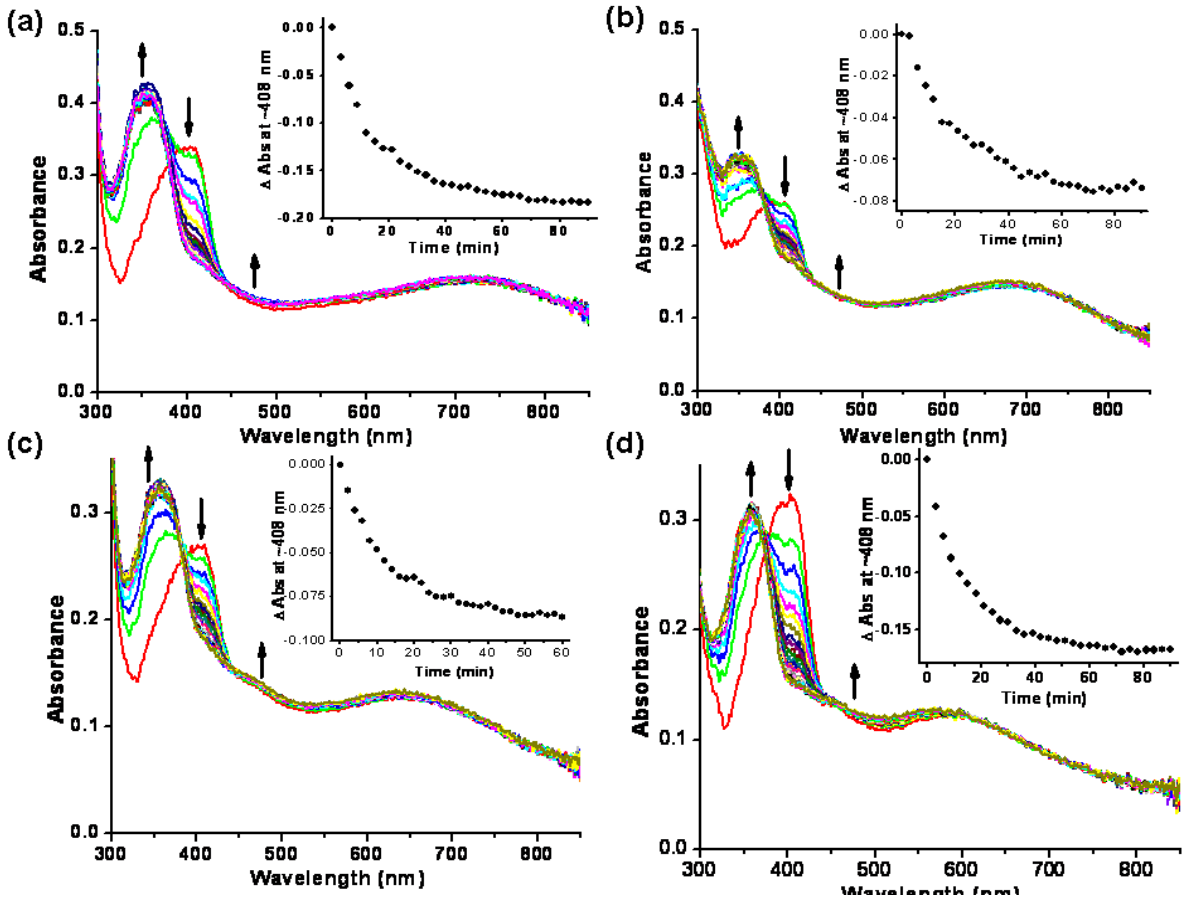

Fig. S9 Absorption of (a) **Ag4-NN-DDPC**, (b) **Ag16-NN-DDPC**, (c) **Ag24-NN-DDPC**, and (d) **Ag32-NN-DDPC** at room temperature obtained at different exposure times (0 to 90 minutes, 3-minute increments for (a), (b) and (d); 0 to 60 minutes, 2-minute increments for (c), under continuous irradiation at 385 nm. Inset: Change in difference absorption spectra of the forward reaction in (a)-(d).

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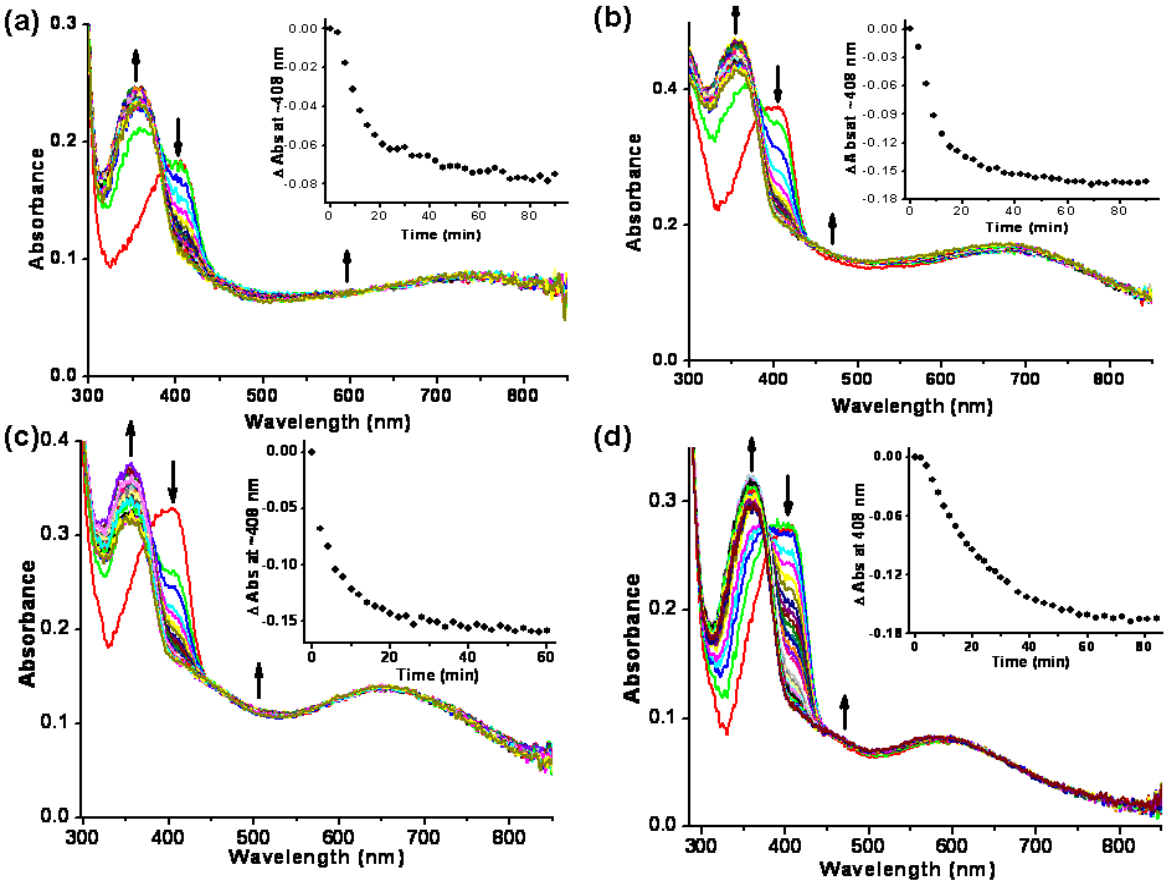

Fig. S10 Absorption of (a) **Ag4-NN-DDPC**, (b) **Ag16-NN-DDPC**, (c) **Ag24-NN-DDPC**, and (d) **Ag32-NN-DDPC** at room temperature obtained at different exposure times (0 to 90 minutes, 3-minute increments for (a) and (b); 2-minute increments for (c) and (d)), under continuous irradiation at 400 nm. Inset: Change in difference absorption spectra of the forward reaction in (a)-(d).

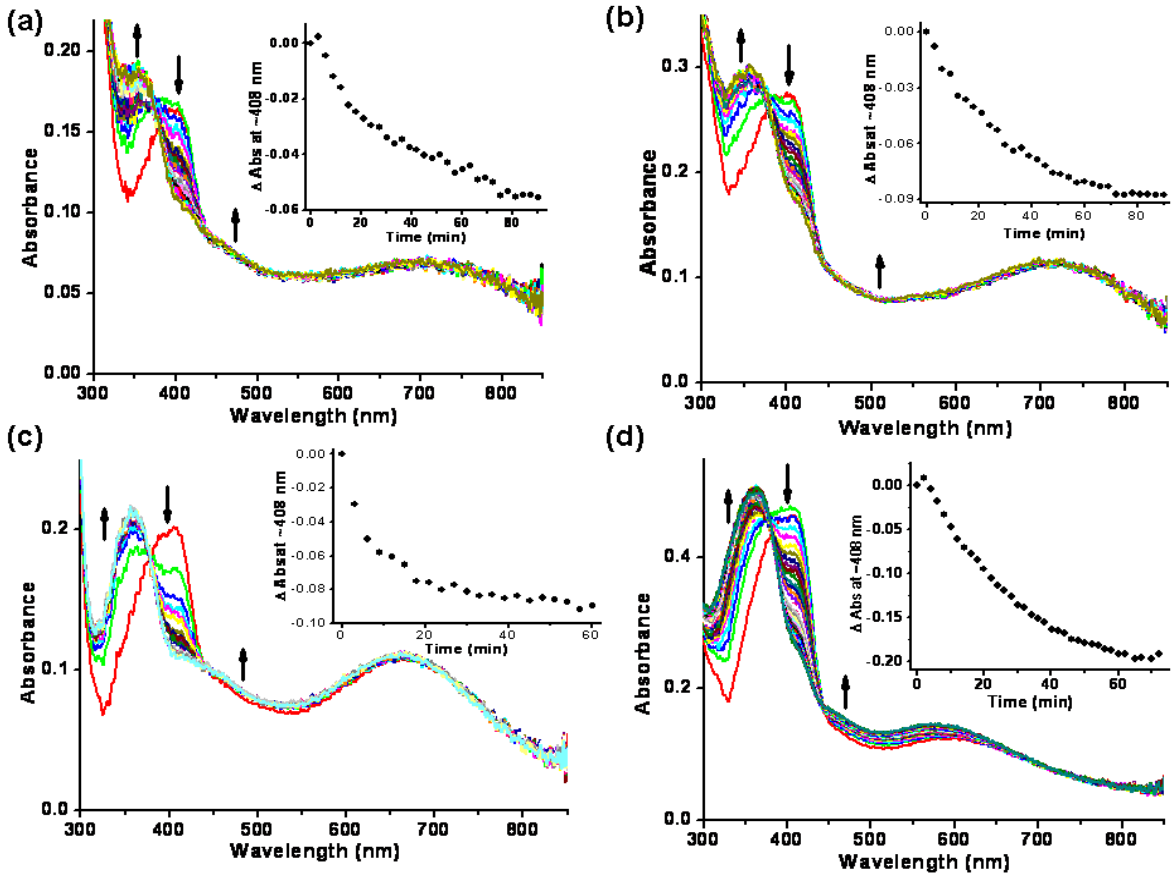

Fig. S11 Absorption of (a) **Ag4-NN-DDPC**, (b) **Ag16-NN-DDPC**, (c) **Ag24-NN-DDPC**, and (d) **Ag32-NN-DDPC** at room temperature obtained at different exposure times (0 to 90 minutes, 3-minute increments for (a), (b) and (c); 2-minute increments for (d), under continuous irradiation at 415 nm. Inset: Change in difference absorption spectra of the forward reaction in (a)-(d).

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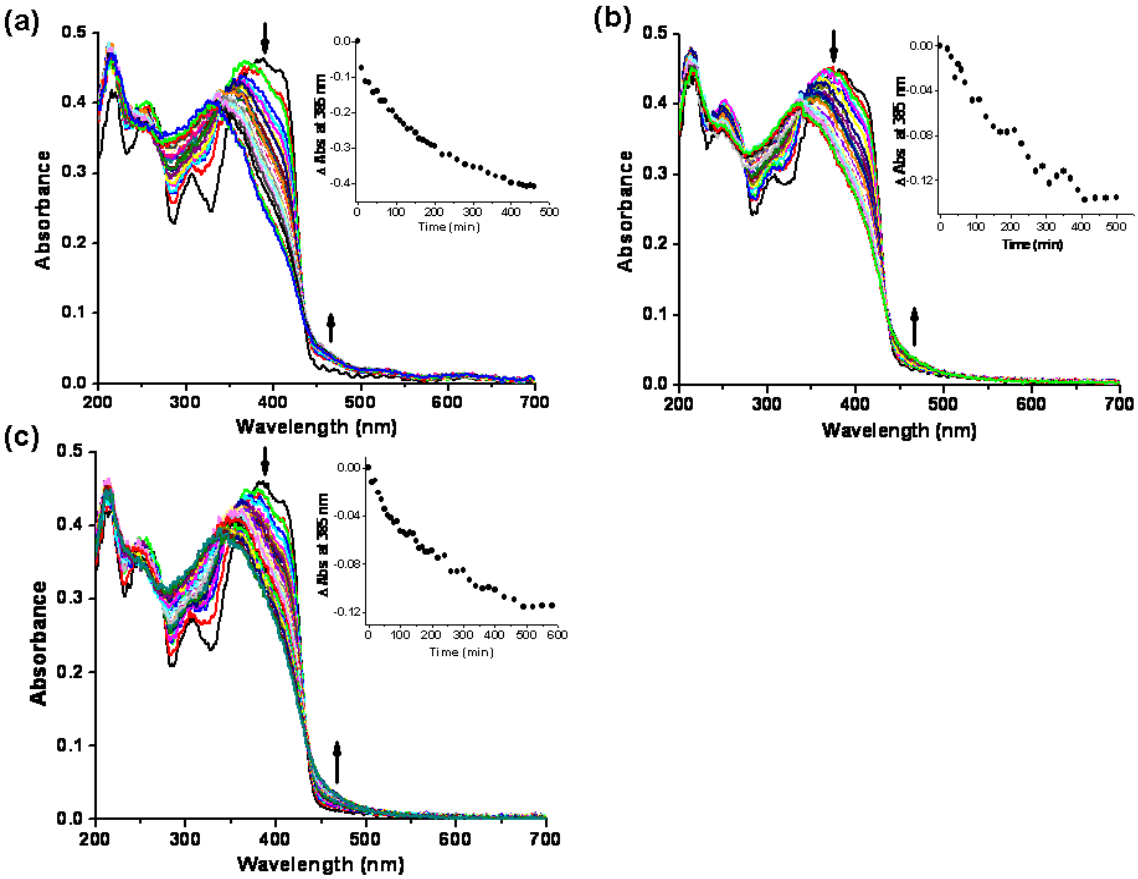

Fig. S12 Absorption of **NN-DDPC** on glass under (a) 385, (b) 400 and (c) 415 nm excitation as a function of exposure time (0 to 200 minutes, 10-minute increments; after 200 minutes, 20-minute increments).

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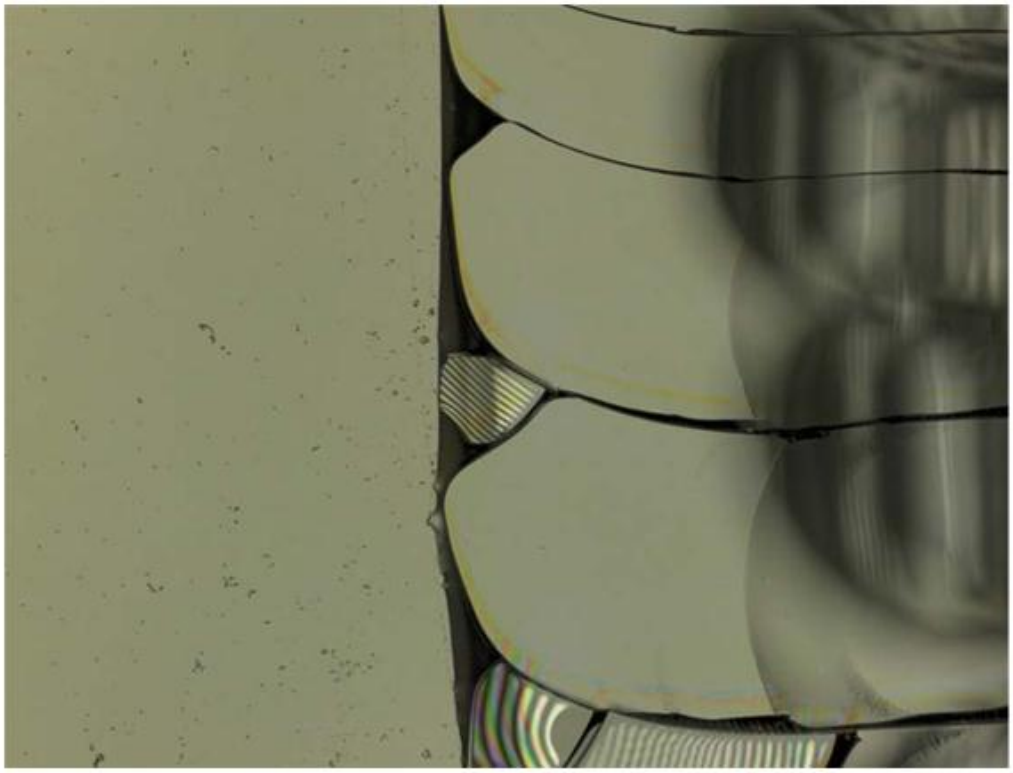

Fig. S13 Color appearance of sol-gel.

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