Electronic Supplementary Information for:

Synthesis and characterization of fluorescent polymer-metal nanocomposites comprising of Poly(silylene-*co*-silyne)s and silver nanoparticles
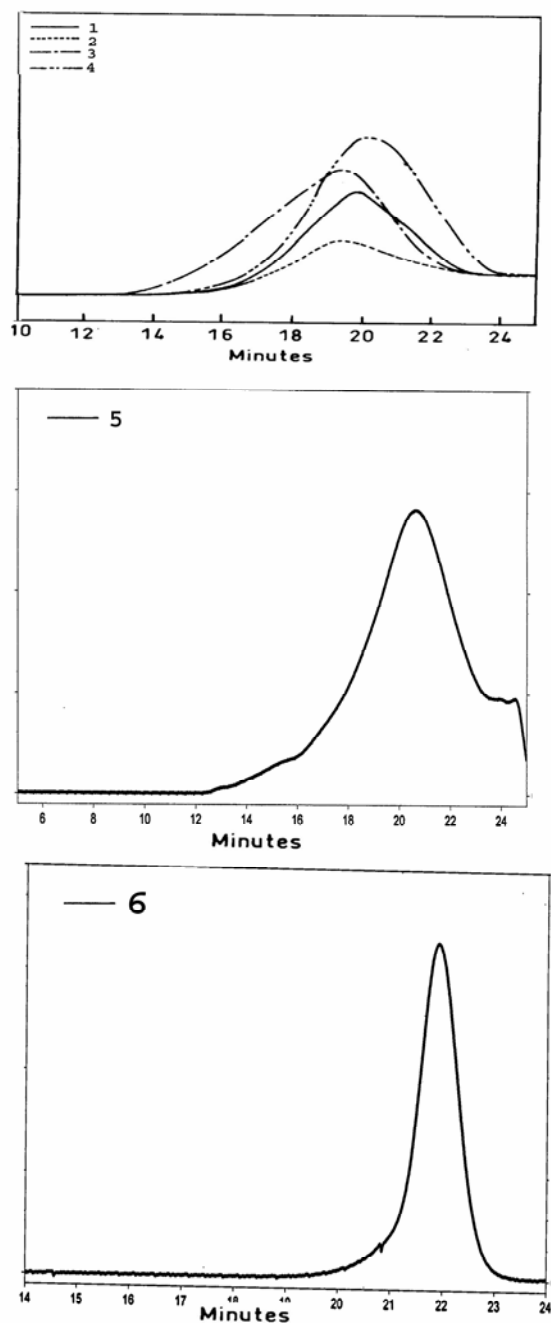
Ravi Shankar,* Usharani Sahoo and Vandana Shahi

Figure S1. GPC profiles of branched polysilanes **1-6**
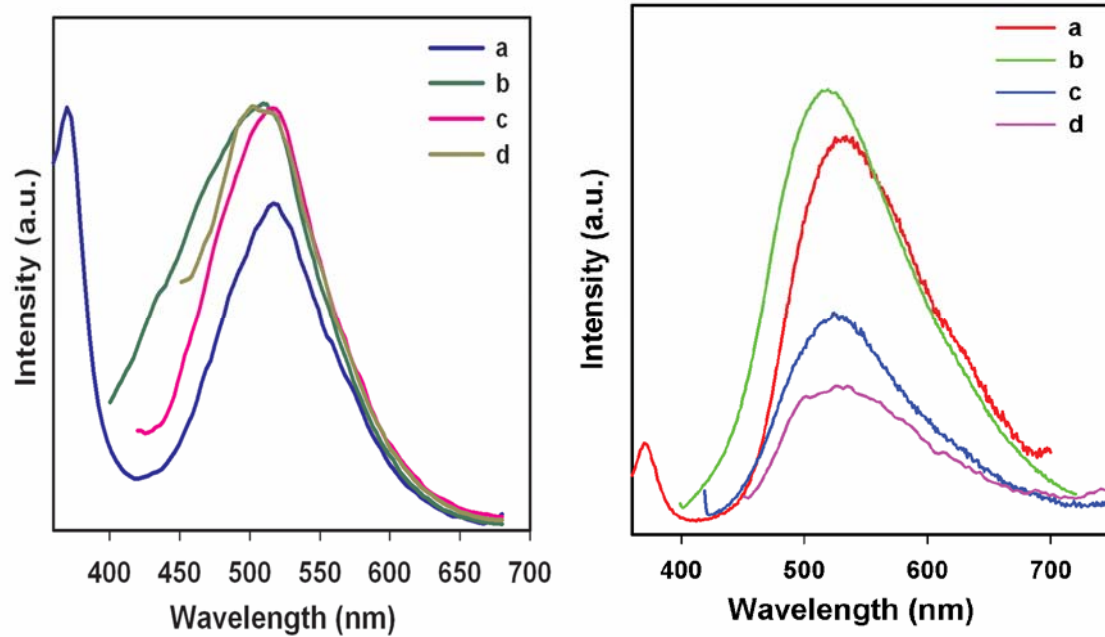
Figure S2. Emission spectra of nanocomposites **1a** and **4a** at different excitation wavelengths: a (350 nm), b (380 nm), c (400 nm), d (430 nm).
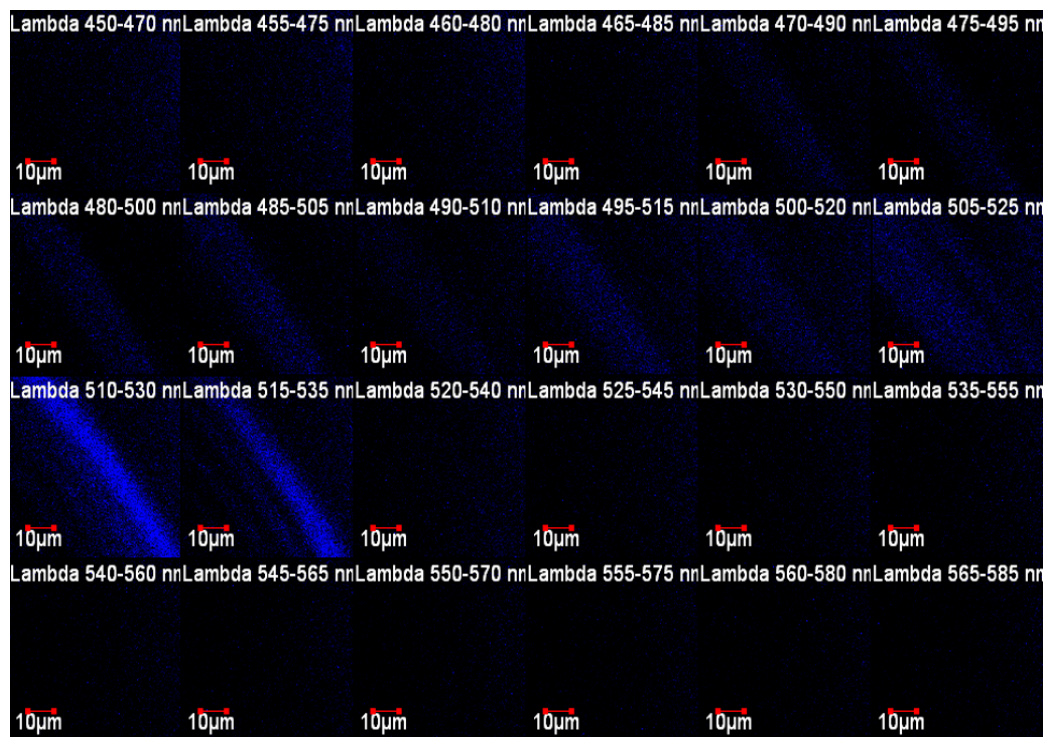
Figure S3. Confocal scanning microscopic images of polymer-Ag nanocomposite **1a** (The images in the wavelength range 450-585 nm were taken by inverted Olympus FV-1000 device using 400 nm laser for excitation)
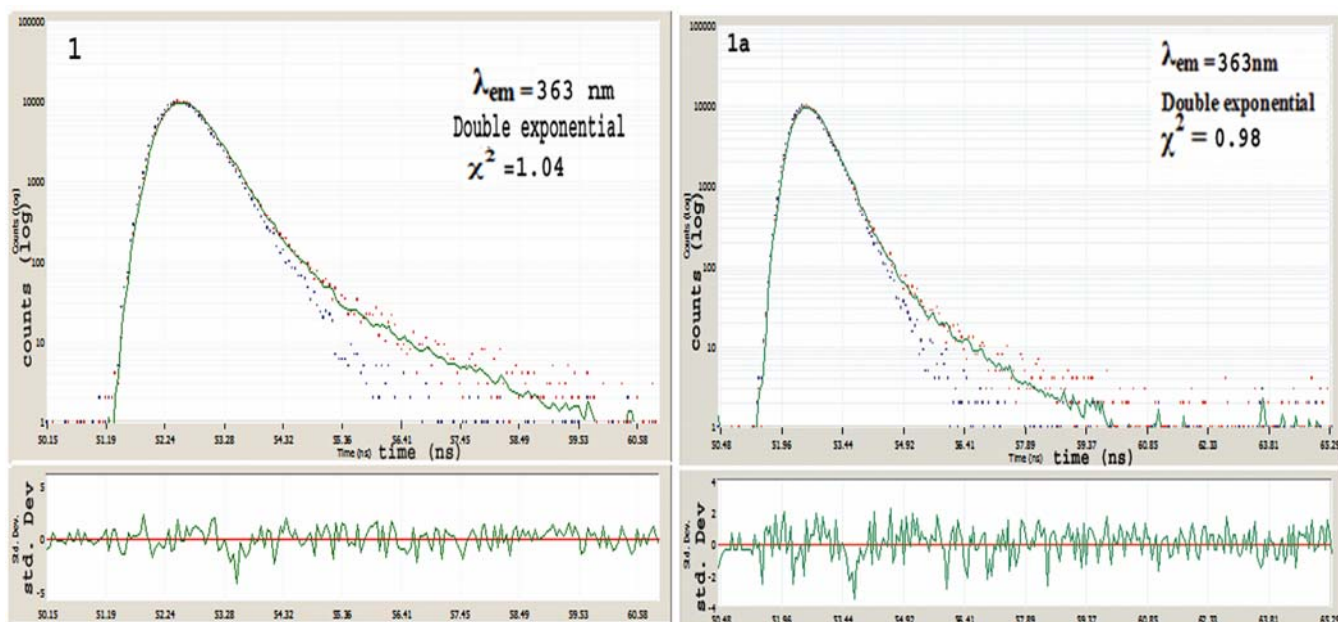
Figure S4. Fluorescence decay curve of polymer **1** and composite **1a** monitored at 363 nm. Excitation is carried out by using 340 nm lasers. The bottom curves (blue) denote the instrumental response function, the top panels (green) provide double-exponential fits to experimental data and the lower panels show weighted residuals for the corresponding fits.
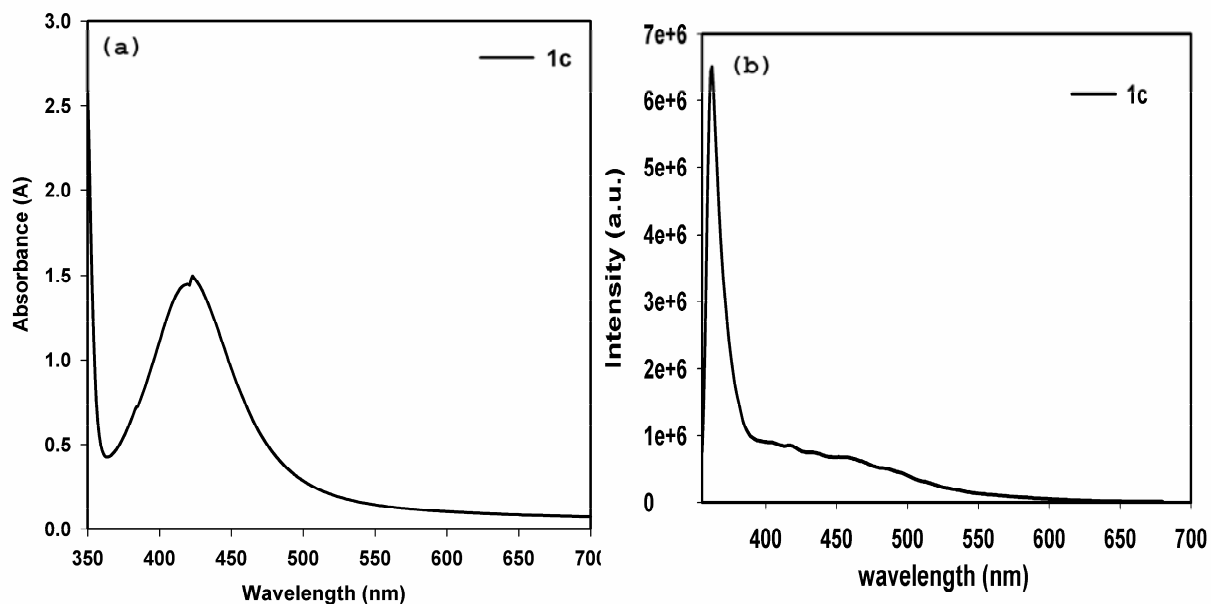

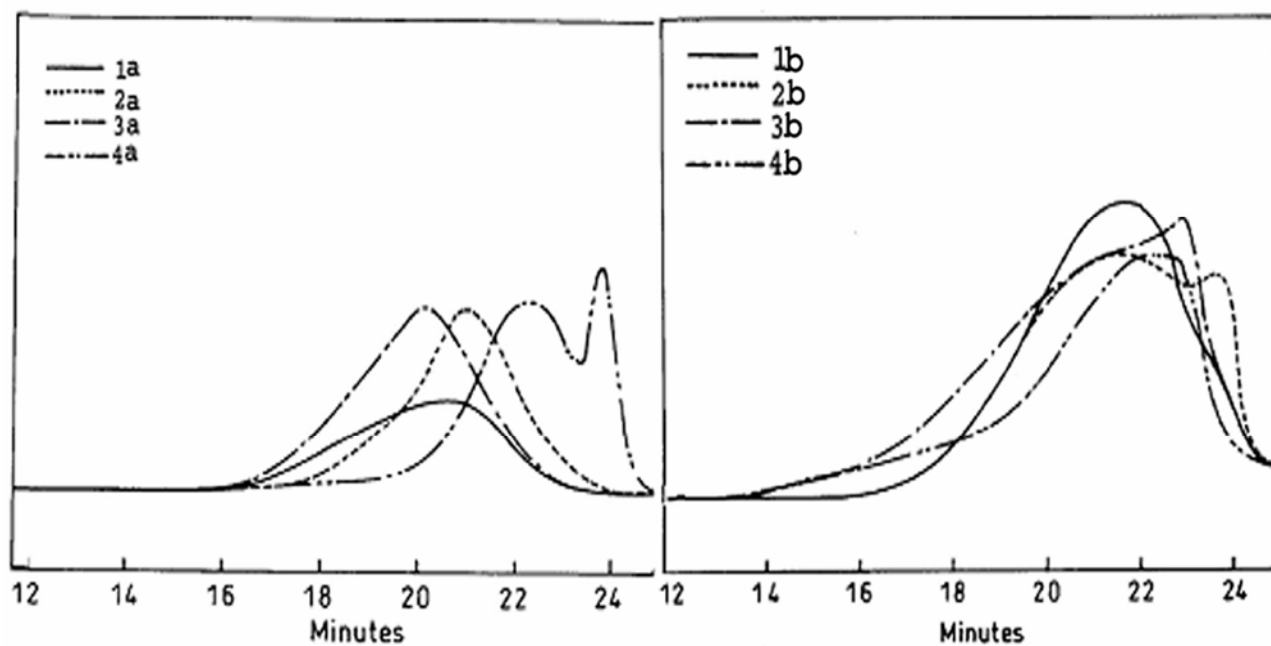**Figure S5. (a)** UV-Vis and (**b**) PL emission spectra of composite **1c** (Toluene, RT)

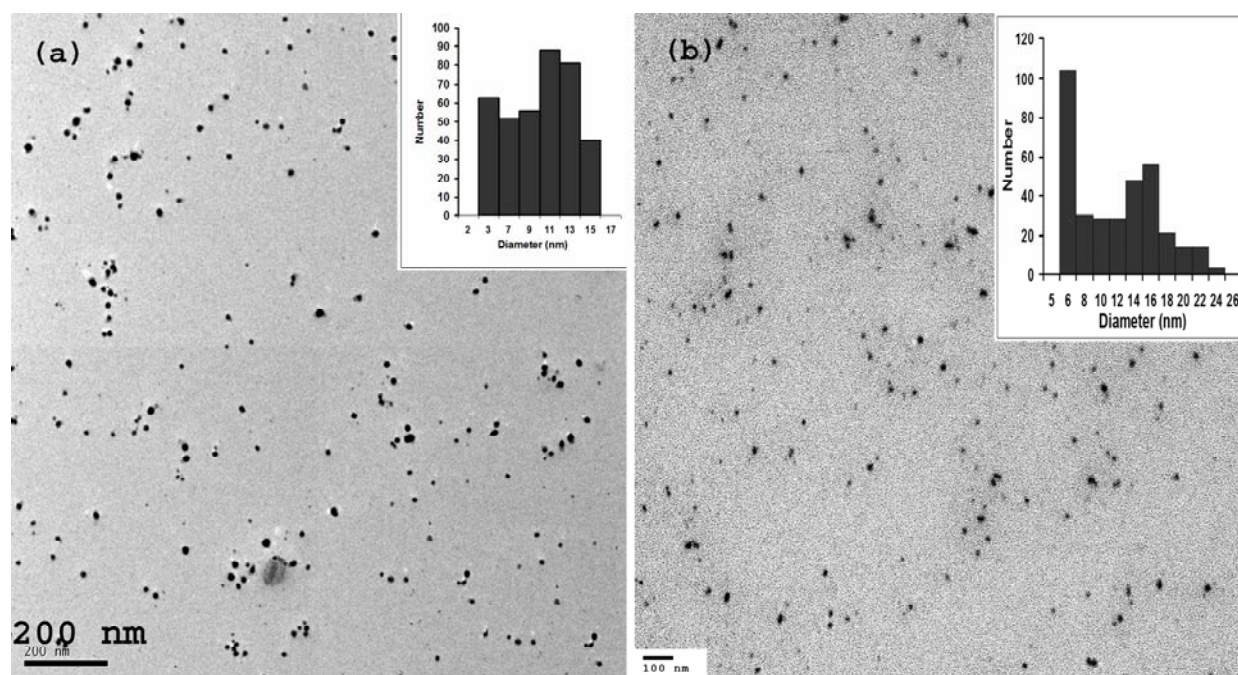**Figure S6.** GPC profiles of oxidized polymers derived from **1a-4a** and **1b-4b**

Figure S7. TEM images of silver nanoparticles in composites **5a** (a) and **6a** (b) derived from copolymer $[(PhMeSi)_{0.55}\text{-}co\text{-}(Et_3SiCH_2CH_2Si)_{0.45}]_n$ and polysilyne $[Et_3SiCH_2CH_2Si]_n$ respectively.
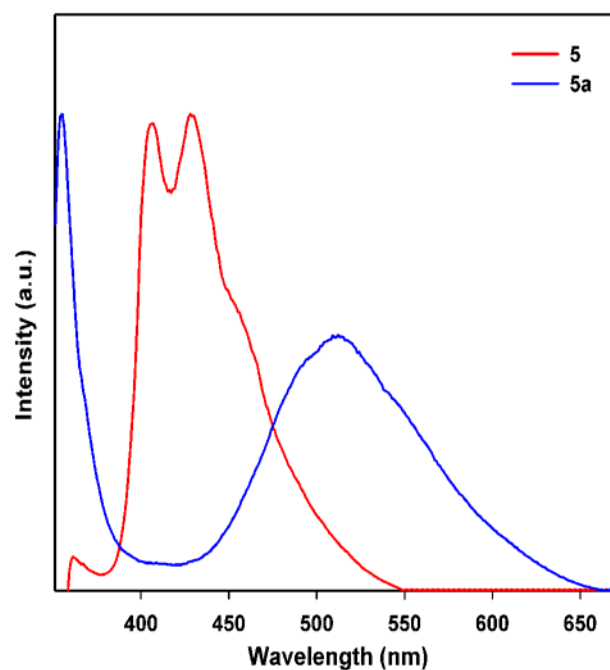
Figure S8. PL emission (Toluene, RT) spectrum of polymer **5** and composite **5a**

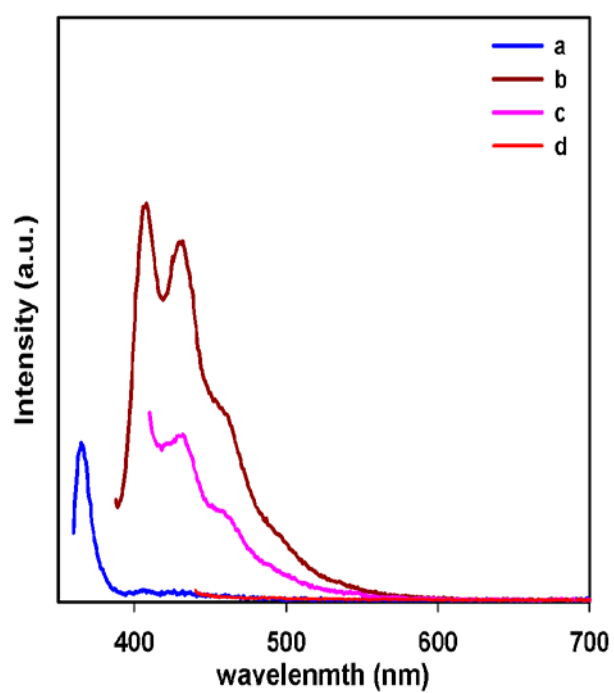**Figure S9.** Emission spectra of silver nanocomposite derived from mixture of homopolymers, $[Ph(Me)Si]_n$ and $[Et_3SiCH_2CH_2Si]_n$ at different excitation wavelengths; (a) 350; (b) 360; (c) 400 and (d) 430 nm.