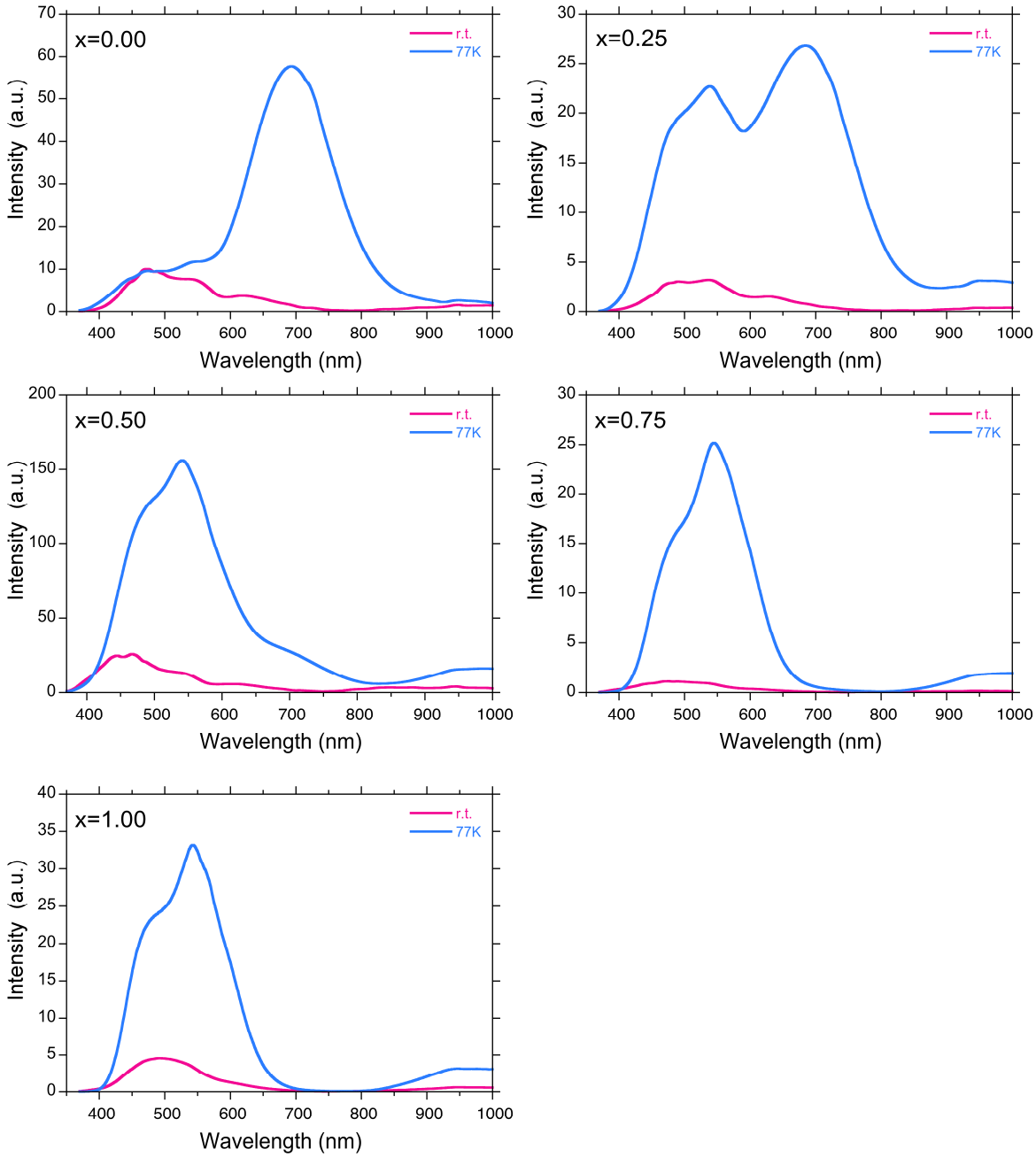
Supplementary Material (ESI) for Polymer Chemistry

Green-and-Red Photoluminescence from Si–Si and Ge–Ge Bonded Network Homopolymers and Copolymers

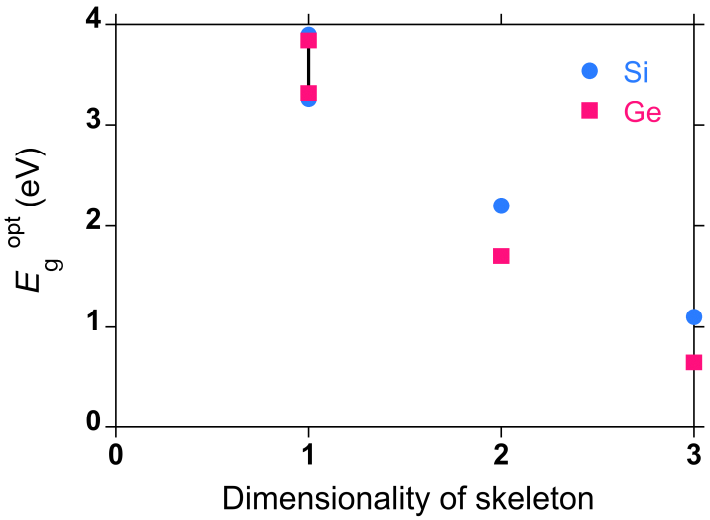
Michiya Fujiki,[a*] Masahiko Kato,[a] Yoshiki Kawamoto[a] and Giseop Kwak[b*]

[a] *Graduate School of Materials Science, Nara Institute of Science and Technology, 8916-5 Takayama, Ikoma, Nara 630-0036, Japan. Fax: 81-743-72-6049; Tel: 81-743-72-6040; E-mail: fujikim@ms.naist.jp*

[b] *Department of Polymer Science, Kyungpook National University, 1370 Sankyuk-dong, Buk-gu, Daegu 702-701, Korea. Fax: 82-53-950-6623; Tel: 82-53-9507758; E-mail: gkwak@knu.ac.kr*



Figures S1. PL spectra (excited at 360 nm) of thin films of **SNP**, **GNP** and **SGNPs** (x = 0.25, 0.50, 0.75) in a vacuum at 77 K and room temperature. Weak, broad PL bands in the range of 800 and 1000 nm are due to the second order diffraction from the 500-nm PL band.



Figures S2. Optical band gap obtained from PL peak energy as a function of dimensionality Si and Ge. Data of 1D-Si and 1D-Ge were taken from (1) M. Fujiki, *Appl. Phys. Lett.*, 1994, **65**, 3251–3253 and (2) N. Ostapenko, N. Kozlova, S. Suto, M. Nanjo and K. Mochida, *Mol. Cryst. Liq. Cryst*., 2008, **497**, 20– 29, respectively.

Table S1. Synthetic condition of **SNP**, **GNP** and **SGNPs**.

polymer	**1**, g	**2**, g	Na , g	12-crown-4, g	MCH, mL	M_w [a)]	$PDI = M_w/M_n$ [a)]
x = 1.00	5.0	0.0	2.3	0.091	20	10.5	3.1
x = 0.75	2.4	1.0	1.6	0.059	20	7.2	2.6
x = 0.50	1.0	0.8	0.8	0.029	20	3.5	1.4
x = 0.25	0.6	2.4	1.2	0.047	20	2.0	1.3
x = 0.00	0.0	2.5	1.0	0.037	20	1.9	1.3

[a)] These values were based on a calibration of polystyrene standards.