

Supplementary Information

Photonic crystal enhancement of Raman scattering

Matin Ashurov,^a Alexander Baranchikov,^{bc} and Sergey Klimonsky^{ac*}

^aFaculty of Materials Science, Lomonosov Moscow State University, Moscow, 119991 Russia

^bKurnakov Institute of General and Inorganic Chemistry, Russian Academy of Sciences, Moscow, 119991 Russia

^cDepartment of Chemistry, Lomonosov Moscow State University, Moscow, 119991 Russia

E-mail address:

* Sergey Klimonsky, email: klim@inorg.chem.msu.ru

S1. Reflectance spectra for opaline PhC films based on monodisperse SiO₂ microspheres

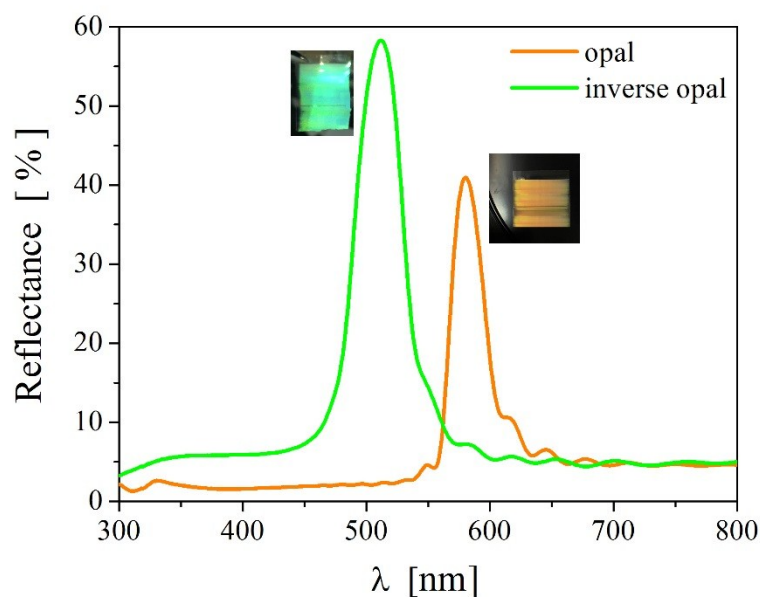


Figure S1. Reflectance spectra for an opal film composed of $D = 255$ nm microspheres and the inverse opal PhC film derived from it (sample F4 in Table 1 of the article).

Inverse films demonstrate higher and wider reflectance peaks associated with the stop band.

S2. Subtracting the luminescence background

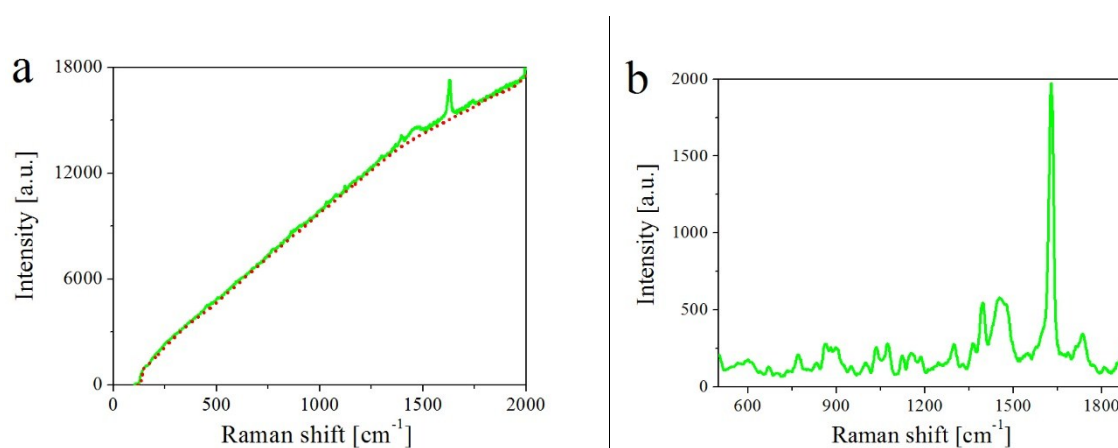


Figure S2. (a) The Raman spectrum recorded for sample F4 (green solid line) and the approximation of the background of its luminescence (red dotted line). (b) The same Raman spectrum after subtracting the luminescence background.

S3. Raman peaks for ETPTA and MB

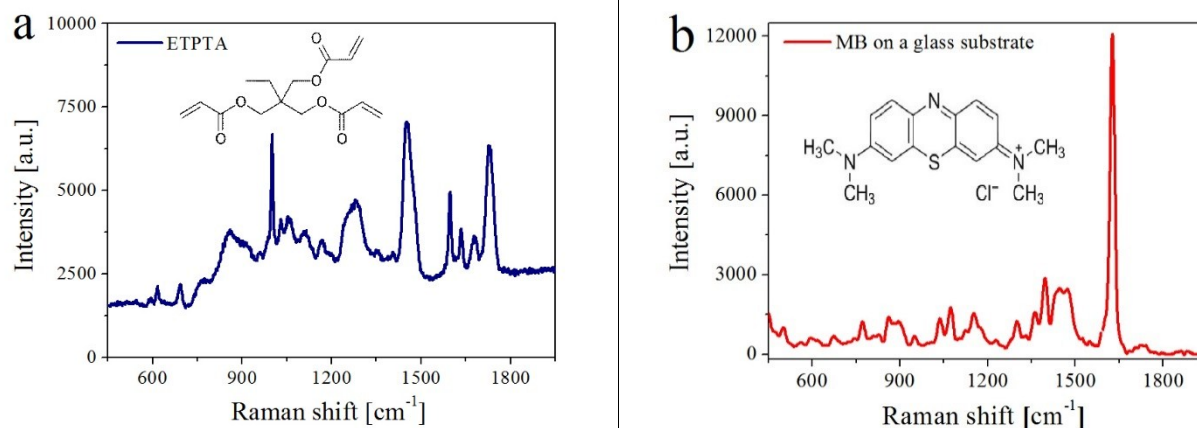


Figure S3. (a) Raman peaks for pure ETPTA film without dye and (b) for MB on a glass substrate. These spectra are in good agreement with the reference data (Ref. (1); see also Refs.^{30, 31} from the main text).

Table S1. Raman peak frequencies corresponding to Fig. S3 (a, b) and their assignment from Ref. (1).

Molecules	Raman shift (cm ⁻¹)	Band assignment
ETPTA	998	out-of-plane bending -CH=CH ₂
	1278	asymmetric stretching of C-O
	1452	sym. def. vib. of =CH ₂
	1635	C=C stretching, polarized
	1681	C=C stretching, strong
	1729	stretching of the -C=O
MB dye	502	skeletal deformation of C-N-C
	596	skeletal deformation of C-S-C
	671	out-of-plane bending of C-H
	770	N-CH ₃ stretching
	1040	C-H in-plane bending
	1186	asymmetric stretching of C-N
	1302	in plane ring deformation of C-H
	1398	asymmetric C-N stretching
	1505	asymmetric stretching of C-C ring
	1629	stretching of the C-C ring

Reference

(1) Socrates, G. *Infrared and Raman Characteristic Group Frequencies: Tables and charts*. 3-rd ed. Middlesex. UK, 2001.