

ELECTRONIC SUPPORTING INFORMATION

Enhancement of Optical and Mechanical Properties of Si Nanopillars by ALD TiO₂ Coating

Mykola Pavlenko^{1,2}, Emerson Coy¹, Mariusz Jancelewicz¹, Karol Zaleski¹,

Valentyn Smyntyna², Stefan Jurga^{1,3}, Igor Iatsunskyi^{1}*

¹NanoBioMedical Centre, Adam Mickiewicz University, 85 Umultowska str., 61-614, Poznan,
Poland

²Experimental physics department, Odessa National I.I. Mechnikov University, 42, Pastera,
65026, Odessa, Ukraine

³Department of Macromolecular Physics, Adam Mickiewicz University, 85 Umultowska str., 61-
614 Poznan, Poland

* Corresponding author: yatsunskyi@gmail.com, Phone: +48731308173

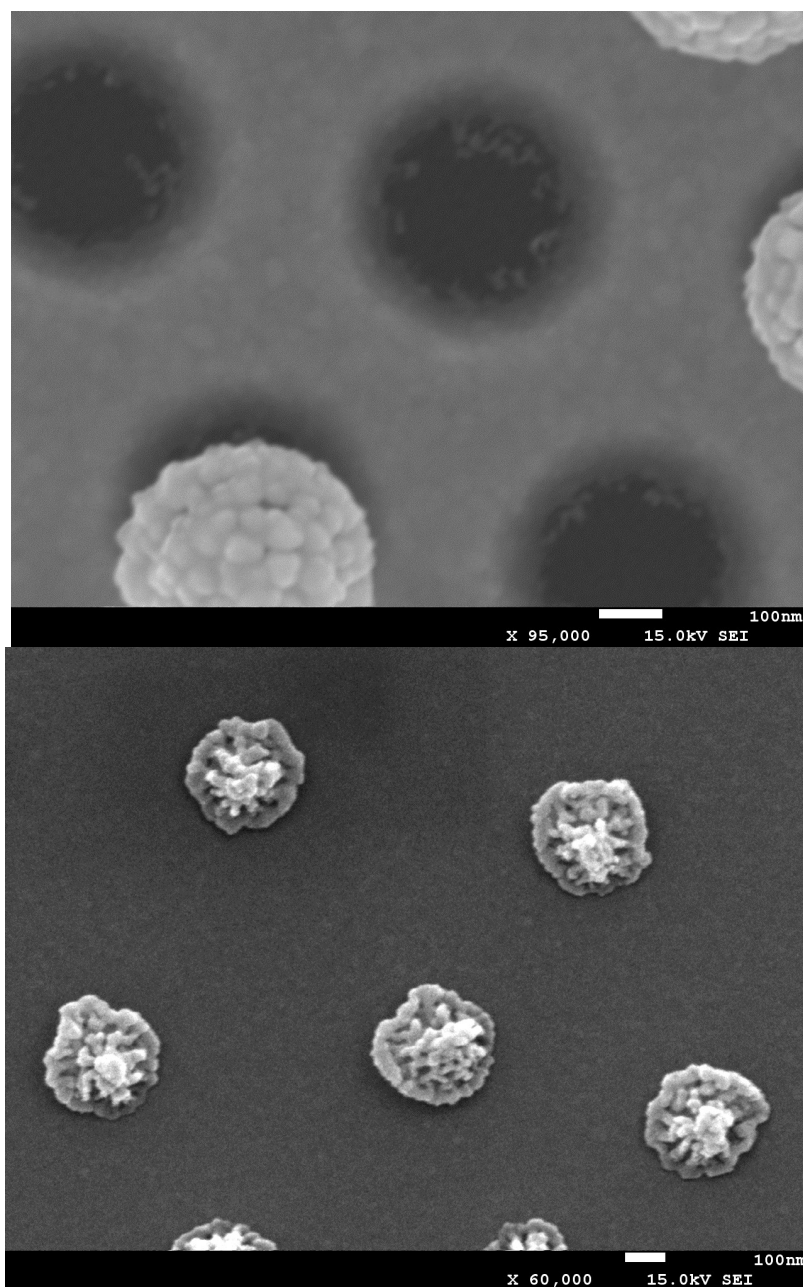


Figure S1. Top view SEM images of polystyrene sphere mask.

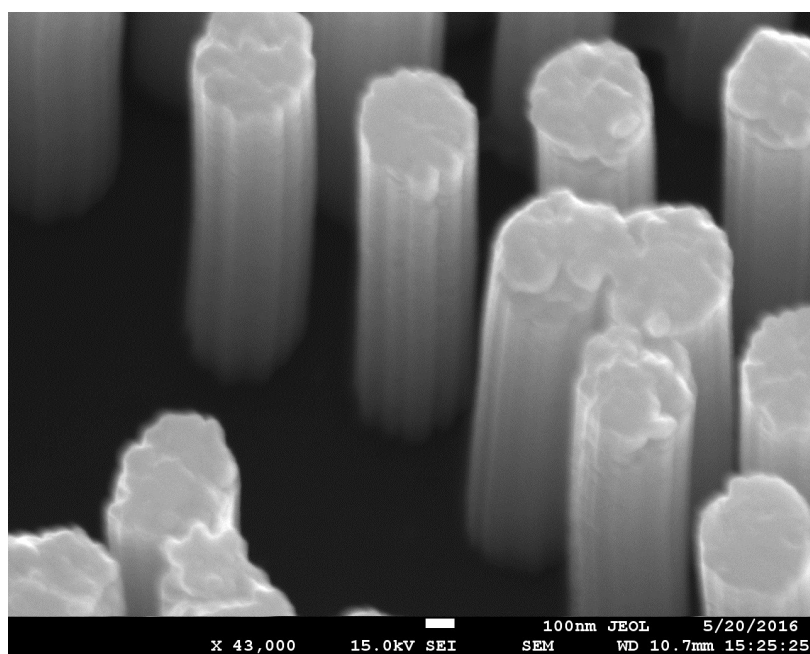
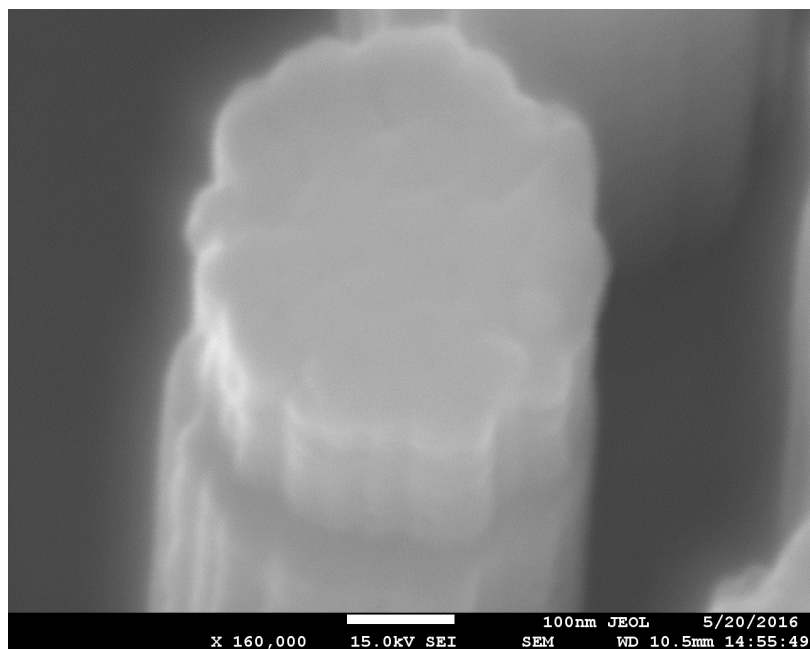


Figure S2. High resolution SEM images of the TiO₂-Si NPI

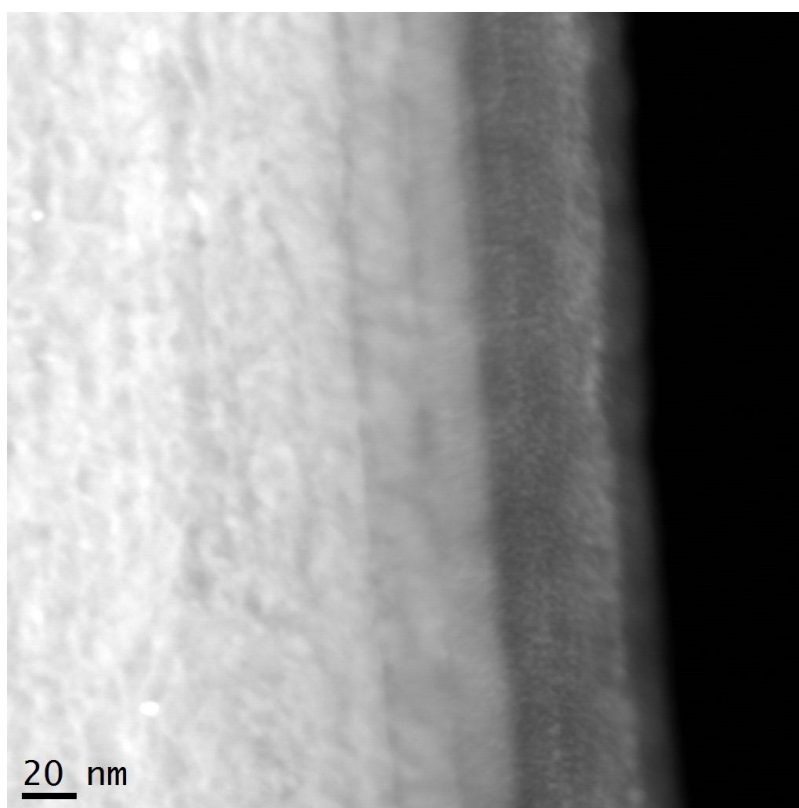
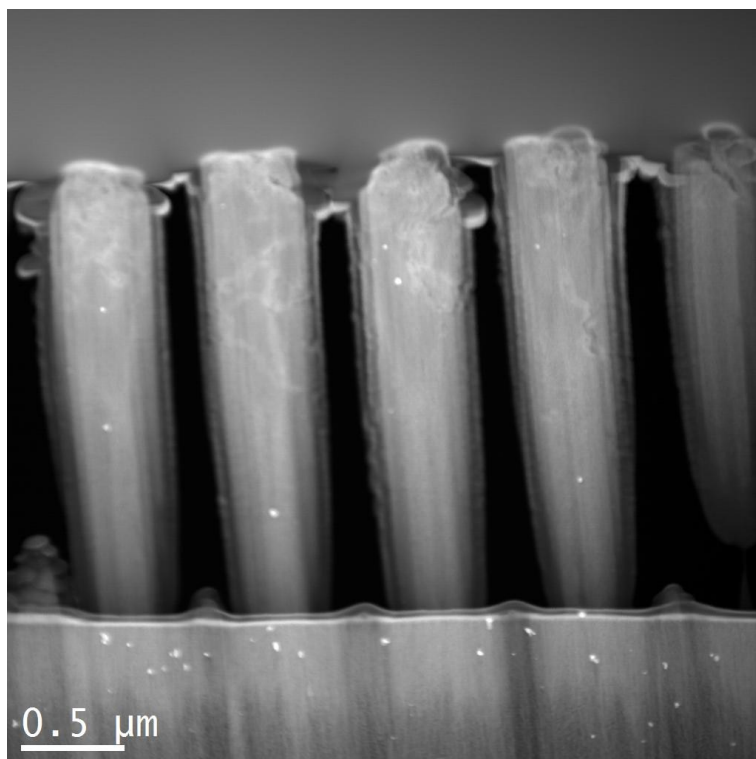
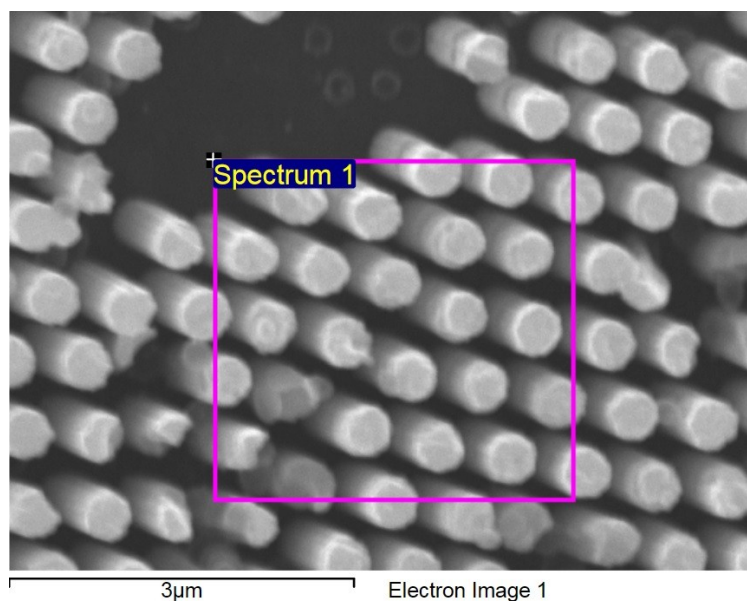
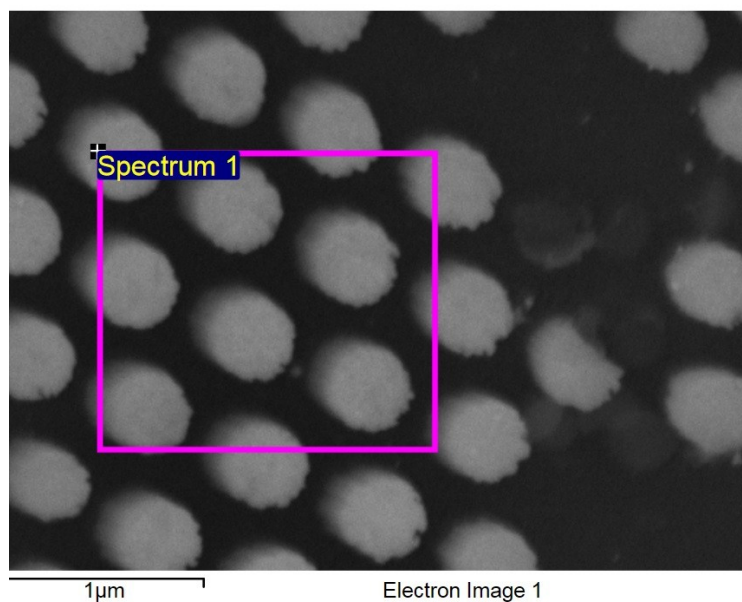


Figure S3. TEM images of the TiO_2 -Si NPI



TiO₂-Si NP (annealed)

Element	Weight%	Atomic%
C K	2.39	4.53
O K	41.87	59.59
F K	0.65	0.78
Si K	26.14	21.19
Cl K	0.96	0.62
Ti K	27.99	13.30
Totals	100.00	



TiO₂-Si NP (as-deposited)

Element	Weight%	Atomic%
C K	2.89	5.54
O K	37.97	54.70
Si K	32.71	26.84
Cl K	1.19	0.78
Ti K	25.24	12.14
Totals	100.00	

Figure S4. EDX analysis of the TiO₂-Si NPI before and after annealing

Peak Analysis

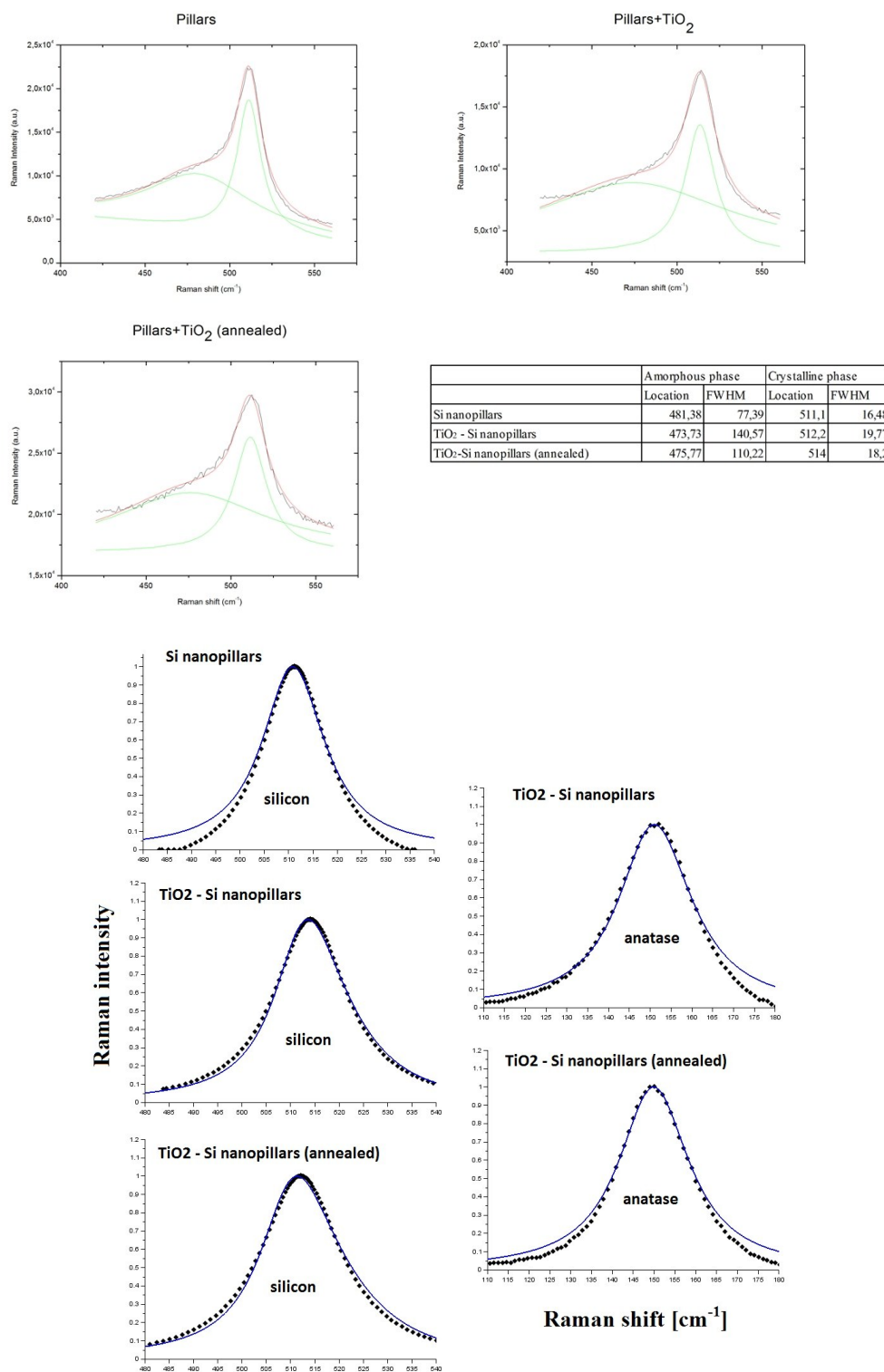


Figure S5. Curve fitting of the Si and TiO₂-Si NPI.