

# Tailoring photoluminescence from Si-based nanocrystals prepared by pulsed laser ablation in He-N<sub>2</sub> gas mixtures

Anastasiya A. Fronya<sup>1,2</sup>, Sergey V. Antonenko<sup>1,3</sup>, Alexander Yu. Kharin<sup>1</sup>, Andrei V. Muratov<sup>2</sup>, Yury A. Aleschenko<sup>1,2</sup>, Sergey I. Derzhavin<sup>1,4</sup>, Nikita V. Karpov<sup>1</sup>, Yaroslava I. Dombrovska<sup>1</sup>, Alexander A. Garmash<sup>1,3</sup>, Nikolay I. Kargin<sup>3</sup>, Sergey M. Klimentov<sup>1</sup>, Victor Yu. Timoshenko<sup>1,2,5\*</sup>, Andrei V. Kabashin<sup>1,6\*</sup>

<sup>1</sup> MEPHI, Institute of Engineering Physics for Biomedicine, Kashirskoe sh. 31, 115409 Moscow, Russia

<sup>2</sup> Lebedev Physical Institute of the Russian Acad. Sci., Leninskiy Pr. 53, 119991 Moscow, Russia

<sup>3</sup> MEPHI, Institute of Nanoengineering in Electronics, Spintronics and Photonics, Kashirskoe sh. 31, 115409 Moscow, Russia

<sup>4</sup> Prokhorov General Physics Institute of the Russian Acad. Sci., Vavilova St. 38, 117942 Moscow, Russia

<sup>5</sup> Lomonosov Moscow State University, Physics Dep., Leninskie Gory 1, 119991 Moscow, Russia

<sup>6</sup> Aix Marseille Univ, CNRS, LP3, Campus de Luminy, Case 917, 13288 Marseille, France

\* Correspondence: [vtimoshe@gmail.com](mailto:vtimoshe@gmail.com) (V.Y.T), [kabashin@lp3.univ-mrs.fr](mailto:kabashin@lp3.univ-mrs.fr) (A.V.K)

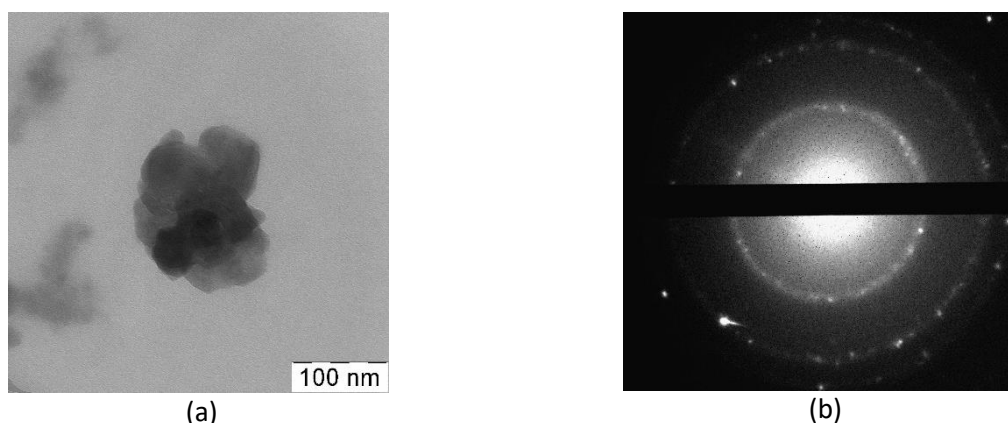


Figure S1. TEM images (a) and electron diffraction pattern (b) of NPs from S-1 sample.

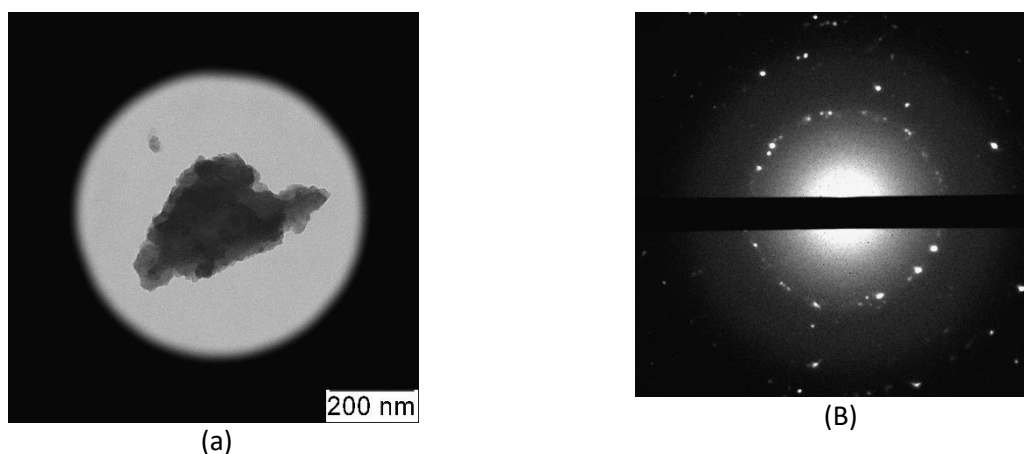


Figure S2. TEM images (a) and electron diffraction pattern (b) of NPs from S-2 sample.

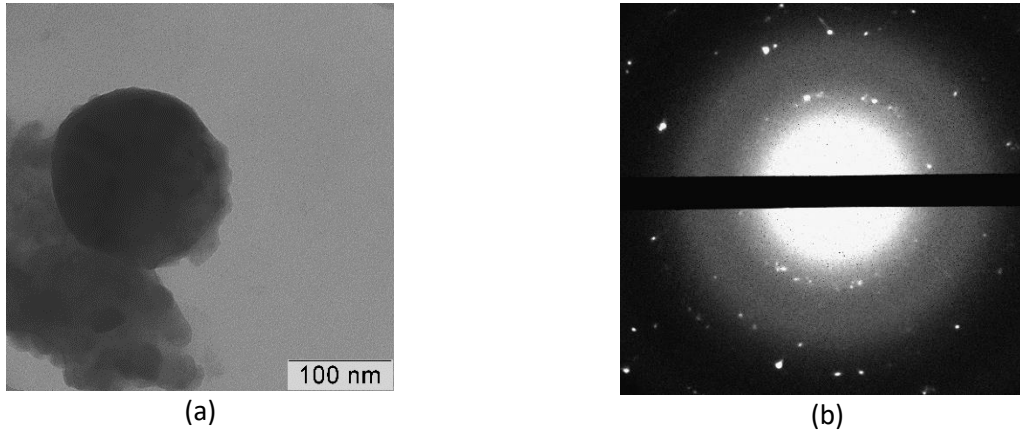


Figure S3. TEM images (a) and electron diffraction pattern (b) of NPs from S-3 sample.

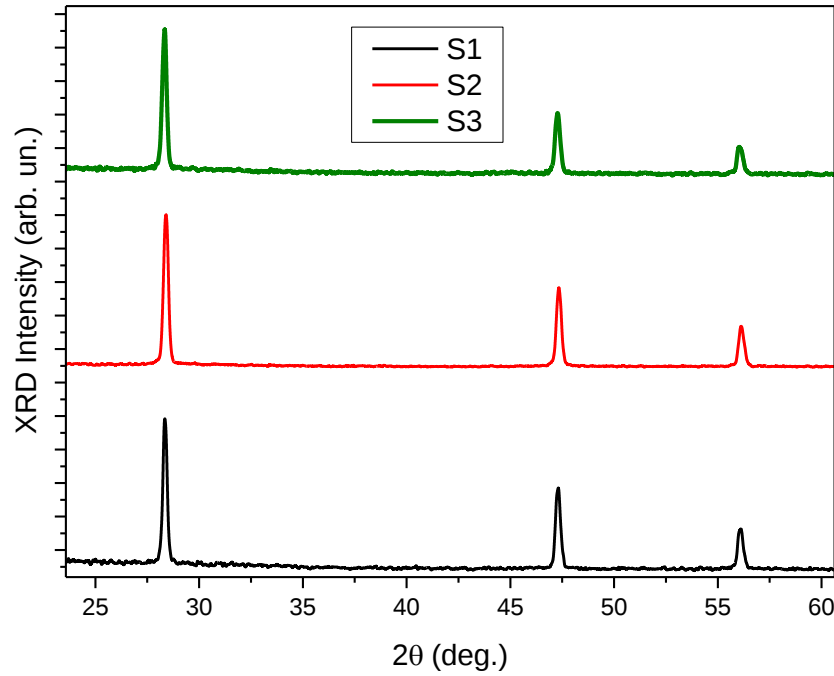


Figure S4. XRD spectra of NPs from samples S-1, S-2 and S-3.

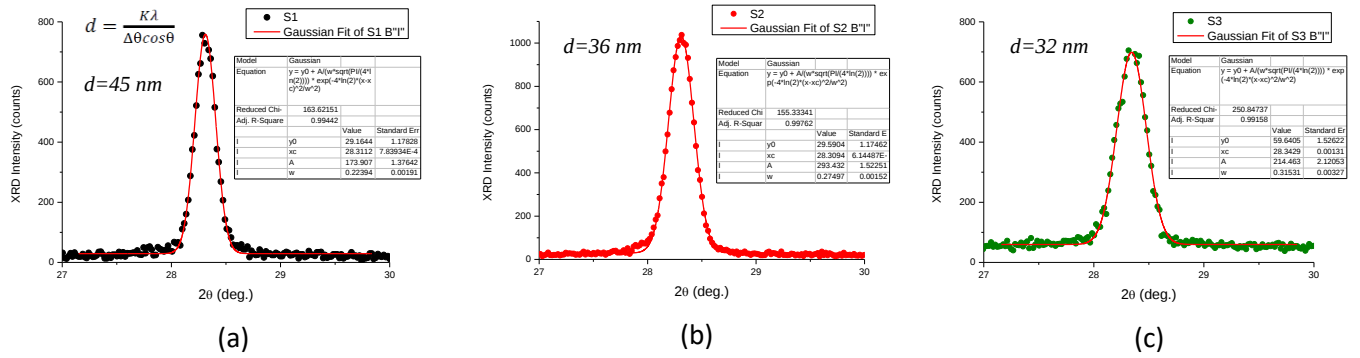


Figure S5. XRD spectra and their analysis in a vicinity of the (111) peak for NPs from samples S-1 (a), S-2 (b), S-3 (c).