Supplementary information: The red and blue luminescence in silicon nanocrystals with oxidized, nitrogen-containing shell

Pavel Galář,^{*a*} Tomáš Popelář,^{*a*} Josef Khun,^{*b*} Irena Matulková,^{*c*} Ivan Němec,^{*c*} Kateřina Dohnalova Newell,^{*d*} Alena Michalcová,^{*b*} Vladimír Scholtz,^{*b*} and Kateřina Kůsová^{*a*}



Fig. S1 EDS maps of other than the elements of interest for the unmodified sample.



Fig. S2 Measured transmittance of the unmodified and modified samples, respectively, and of the plasma activated water.

^a Institute of Physics, Czech Academy of Sciences, Cukrovarnická 10, Prague 6, 162 00, Czech Republic.

^b University of Chemistry and Technology, Technická 3, Prague, 166 28, Czech Republic.

^c Department of Inorganic Chemistry, Faculty of Science, Charles University, Hlavova 8, 128 43, Prague 2, Czech Republic.

 $^{^{}d}$ University of Amsterdam, Institute of Physics, Science Park 904, 1098 XH Amsterdam, The Netherlands.



Fig. S3 Example fits of the PL of the unmodified sample excited with 315 nm. The emission wavelength are noted at each panel.



Fig. S4 The PL map and the fitted β parameter of the stretched-exponential component of the modified sample. Excited with 315 nm.



Fig. S5 Density of states and real-space localization of an Si nanoparticle with partly $-O-NH_2$ -terminated surface. The insets are 3D real-space localizations for the two energy states indicated by the gray dashed lines.



Fig. S6 The PL map of and fitted characteristics of the PAW under 315-nm excitation.