

Supplementary data

Coordination of rare earth element cations on the surface of silica-derived nanoadsorbents

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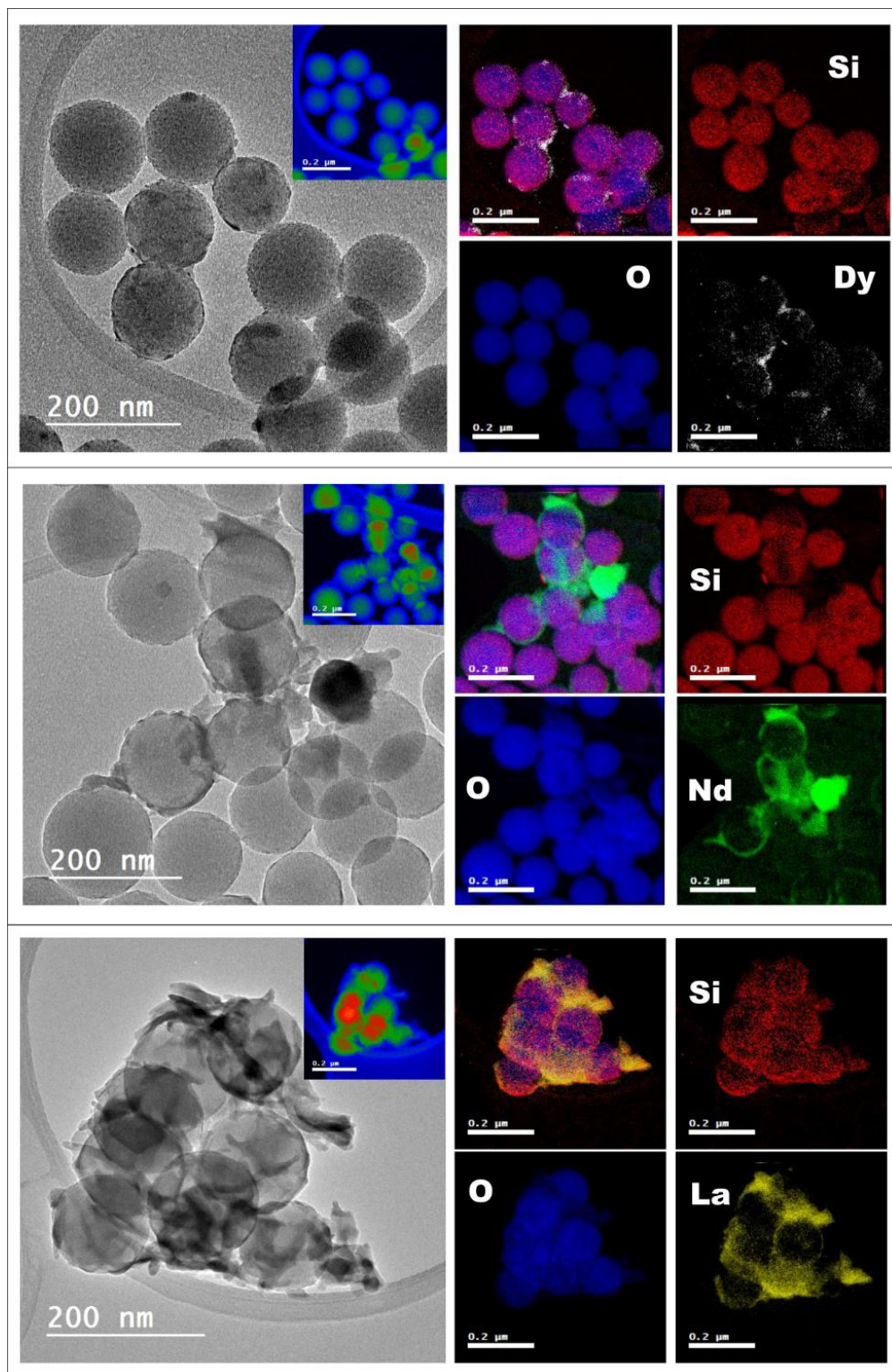


Figure FS1. BF-TEM images and elemental mapping by EFTEM of SiO₂ nanoparticles bearing induced crystallized REE. The insets are the thickness mapping of the regions of interest. The individual EFTEM elemental maps of Si (red), O (blue), Dy (white), Nd (green) and La (yellow) and the overlay of all elements for each sample are shown. (Reprinted with permission from ref. 32- Sci. Rep., 2017, 7, 43740).

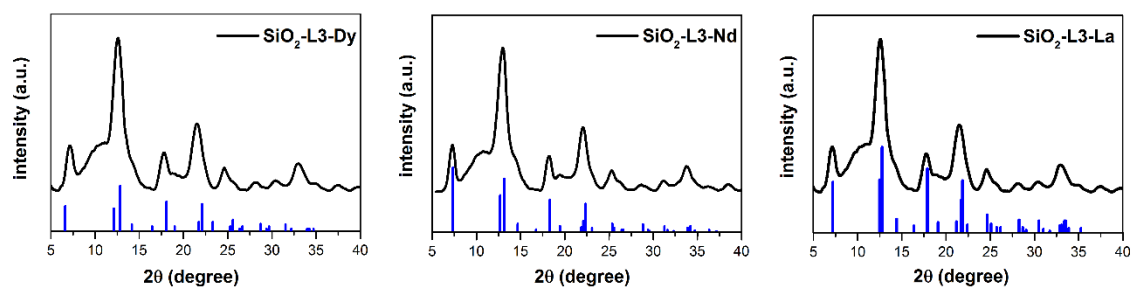


Figure FS2. XRPD patterns of IDA derivate functionalized SiO₂ nanoparticles bearing crystallized REE hydroxides on their surface, the blue lines represent the pattern of the corresponding REE hydroxides, as provided from the crystallographic database included in Bruker EVA-12 software. (Reprinted with permission from ref. 32- Sci. Rep., 2017, 7, 43740).

Table TS1. Experimental values for individual measurements of zeta-potentials (MilliQ water, pH = 6.50)

Sample Name	Measurement Date and Time	T	Reported Zeta Potential	Mob	Cond	Derived Count Rate
		°C	mV	µmcm/Vs	mS/cm	kcps
SiO ₂ NPs 1	Tuesday, November 07, 2017 9:19:31 AM	20	-51,9	-3,679	0,0439	2602,3
SiO ₂ NPs 2	Tuesday, November 07, 2017 9:22:44 AM	20	-55,8	-3,961	0,0164	2324
SiO ₂ NPs 3	Tuesday, November 07, 2017 9:23:24 AM	20	-68,3	-4,845	0,0173	1690,3
SiO ₂ .IDA 1	Tuesday, November 07, 2017 9:36:18 AM	20	-48,2	-3,417	0,00328	2113
SiO ₂ .IDA 2	Tuesday, November 07, 2017 9:39:17 AM	20	-44,3	-3,141	0,0432	3385,2
SiO ₂ .IDA 3	Tuesday, November 07, 2017 9:39:57 AM	20	-46,5	-3,3	0,00295	5620,8
SiO ₂ -IDA-Dy 1	Tuesday, November 07, 2017 9:46:14 AM	20	-18,4	-1,304	0,00274	13862,3
SiO ₂ -IDA-Dy 2	Tuesday, November 07, 2017 9:49:13 AM	20	-19,2	-1,361	0,043	5341,3
SiO ₂ -IDA-Dy 3	Tuesday, November 07, 2017 9:49:53 AM	20	-18,9	-1,341	0,00265	8204,5
SiO ₂ -IDA-Dy-highpH 1	Tuesday, November 07, 2017 9:55:23 AM	20	-11,7	-0,8323	0,0057	589,2
SiO ₂ -IDA-Dy-highpH 2	Tuesday, November 07, 2017 9:58:22 AM	20	-12,5	-0,8888	0,0289	3871,6
SiO ₂ -IDA-Dy-highpH 3	Tuesday, November 07, 2017 9:59:02 AM	20	-12,6	-0,8905	0,00563	2729,6