† Electronic Supplementary Information (ESI) available: [Fig S1 illlustrates the stability of colloidal solution in acidic medium and in the charging solution, XRD patterns of samples treated at different temperatures are supplied in Fig S2, typical Raman spectrum of as-synthesized powder at 180°C is plotted in Fig S3, Table SI: particle size deduced from Rietveld Refinement and TEM for different R=OA/OM values, Table SII: Evolution of cell parameters and particule size for different amount in OM, Fig S4: distribution of particle sized according to TEM images, the relative percentages of exposed {001} and {101} faces as function of R are detailed in Fig S5, Effects of post-treatments were characterized by IR and TGA, , the experimental results are displayed in Table S3, Fig S6 and S7. DLS and TEM of the charging solution testify for the low degree of colloids aggregation in Fig S8 and S9, a typical topographic AFM image of the surface of a film is supplied as figure S10, the Tauc plot of a film prepared by EPD at 10V for 7 min is displayed in figure S11.]. See

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Low temperature synthesis of shape-controlled titanium dioxide nanocrystals and electrophoretic deposition

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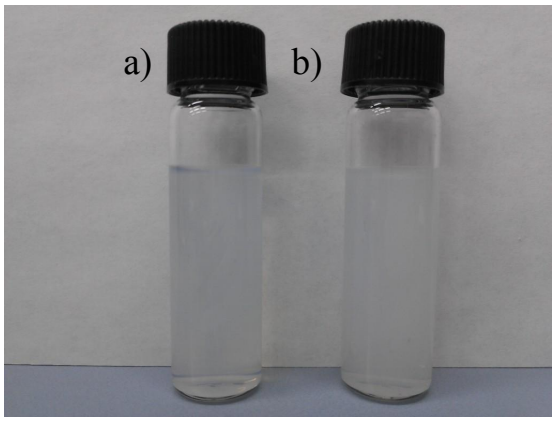

Figure S1. Stable colloidal solutions dispersed in: a) 0.1 mol.L^{-1} HNO_3 solution and b) EtOH with additives.

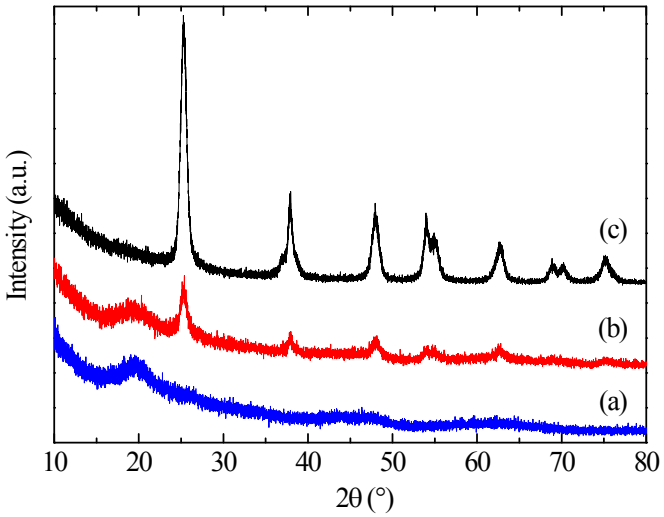

Figure S2. XRD patterns recorded for samples with R = 0/5 at different temperatures:

(a) 120°C, (b) 140°C and (c) 180°C.

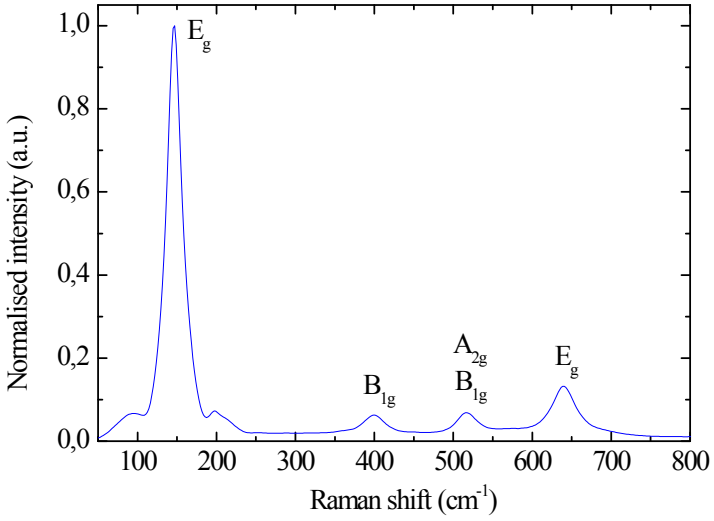

Figure S3. Typical Raman spectra measured for as-synthesized (powder) samples: R = 0/5.

Table S1. Comparison of particle size distributions obtained by TEM and XRD on samples synthesized with different R values. Reaction temperature: T = 180 °C.

TEM/XRD	Mean particle size along other directions ([010] excluded) (nm)	Mean particle size along other directions ([010] excluded) (nm)
Sample	**XRD**	**TEM**
7 / 3	**9**	**4.5**
5 / 5	**11**	**7.5**
3 / 7	**13**	**11**
0 / 5	**17**	**19**

Table S2. Summary of structural parameters determined from XRD refinement for different R values when only OM is added as surfactant (T = 180 °C).

	a = b (Å)	c (Å)	Average crystallite size (nm)	Average crystallite size along [100] (nm)
0 / 1.25	3.79	9.49	18	12
0 / 5	3.79	9.48	17	11
0 / 20	3.79	9.48	15	9

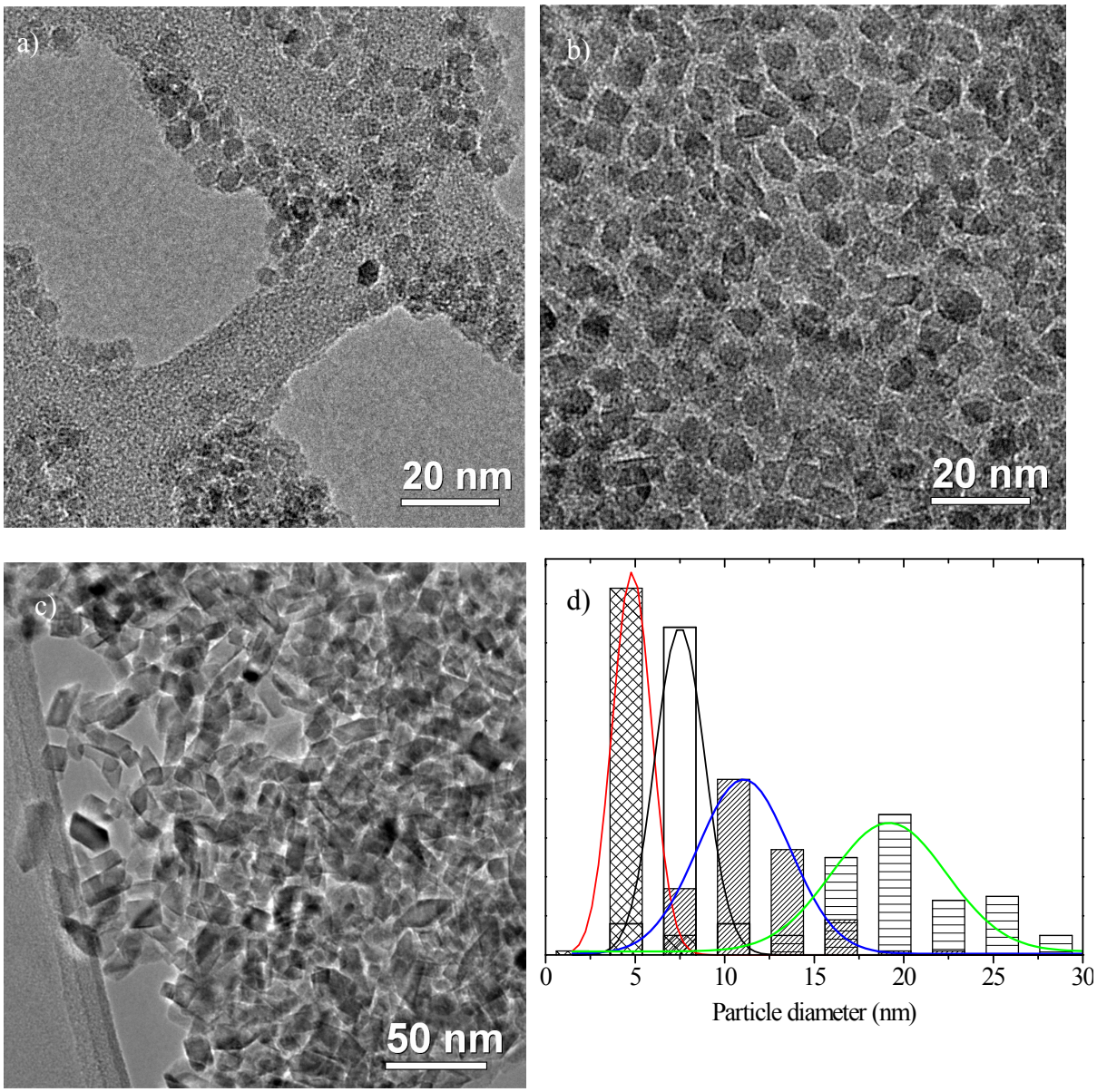

Figure S4. TEM study of the samples prepared at T = 180°C with different R values: (a-c) low-magnification images for R = 7/3, 5/5 and 0/5 respectively. (d) size distribution of particles fitted to a Gaussian distribution centred on 4.5 nm for R = 7/3 (red line, square hatched), 7.5 nm for R = 5/5 (black line, empty), 11 nm for R = 3/7 (blue line, diagonal hatched) and 19 nm for R = 0/5 (horizontal hatched).

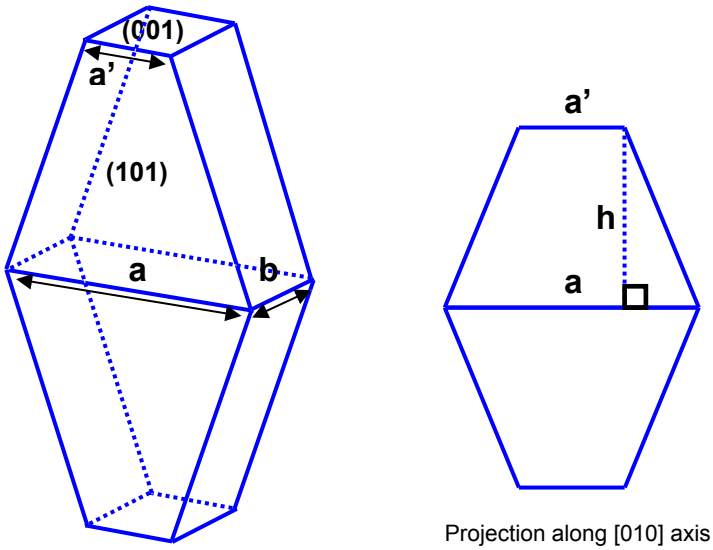

Figure S5. The geometric model of truncated rhombic and rhombic anatase NCs, see text for details.

This model has been proposed considering a platelet-like morphology along the [010] zone axis. According to this approximation, the percentage of exposed {101} and {001} faces were simply calculated by the following equation:

$$\%S\{001\}_{exp} = S\{001\}/ (S\{101\} + S\{001\})$$
$$= 2a'b/ [4h(a+a')/2 + 4b [(a-a')^2/4 + h^2]^{1/2} + 2a'b]$$

where b corresponds to the thickness of the platelet, a, a' and h are the largest and the lowest bases and the height of the trapezoid {101} face, respectively. The thickness was evaluated from the comparison with HR simulations. The 3 others parameters were estimated from the analysis of HRTEM images by averaging values for approximately 50 particles for each sample.

Table S3 : Assignment of vibrational bands of FTIR spectra of powders prepared with different synthetic conditions.

Wavenumber (cm^{-1})	**Attribution**
3400	νO-H/ νN-H
3200	νO-H
3005	cis ν(–C-H =)
2954	ν_{as} CH_3
2922	ν_{as} CH_2
2852	ν_{s} CH_2
1620	δ H_2O
1610-1550	ν (NH_2)/ ν (NH_2^+)
1525	ν_{as} $–COO^-$
1460	ν_{as} (CH_3)/ ν (CH_2)
1429	ν_{s} $–COO^-$
1410	ν_{s} $–COO^-$
1385	ν_{as} NO_3^-
1000-500	ν Ti-O

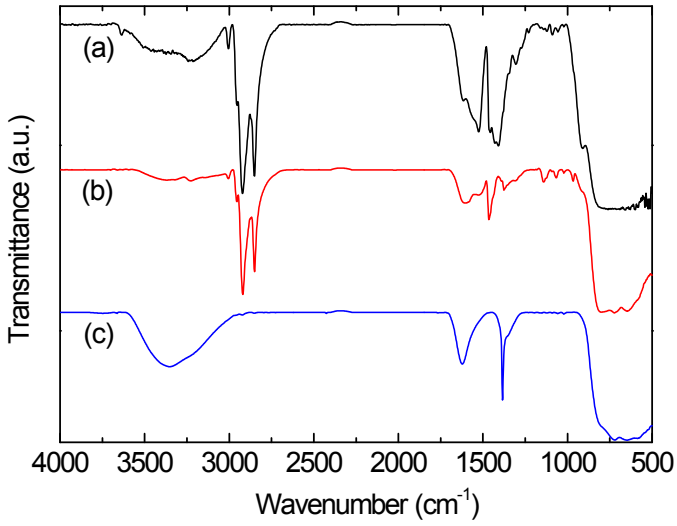

Figure S6. FTIR spectra of the products synthesized at T = 180°C: (a): R = 6/4 and (b) R = 0/5 before HNO_3 treatment (0.1 $mol.L^{-1}$).and (c) R = 0/5 after HNO_3 treatment.

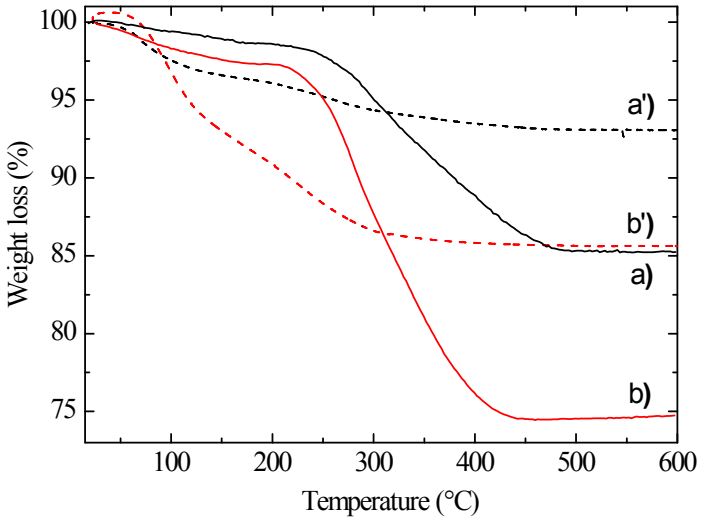

Figure S7. TGA curves obtained for samples synthesized at T = 180°C for R = 0/5 and R = 7/3 before, (a), (b) and after, (a'), (b') the HNO_3 treatment (1 $mol.L^{-1}$), respectively.

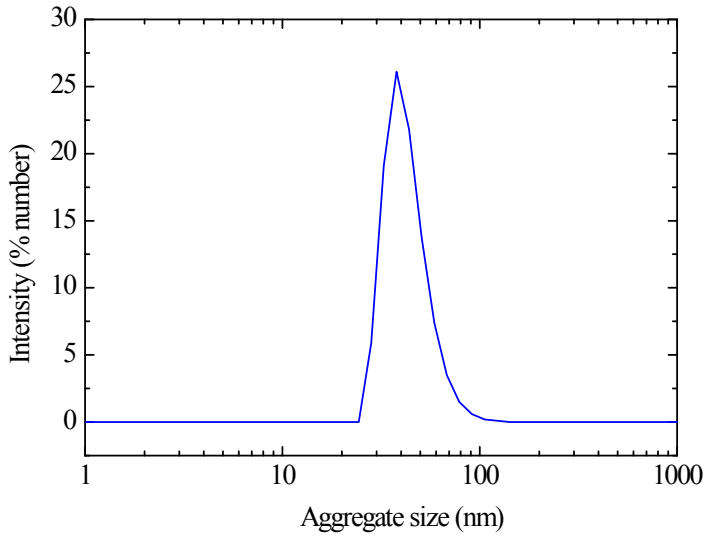

Figure S8. Dynamic light scattering measurements for colloidal solutions obtained after the removal of surfactants (starting with R = 0: 5) and redispersion in the charging solution.

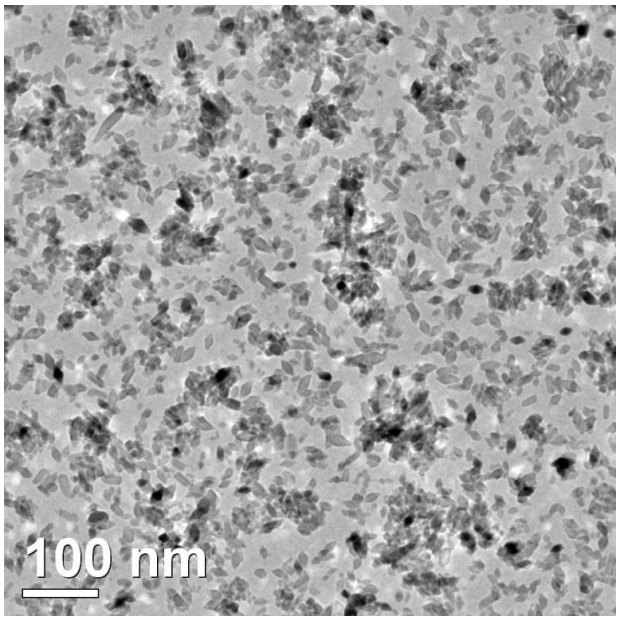

Figure S9. TEM image of the EtOH-based stable colloidal solution after drying a solution drop on a TEM grid.

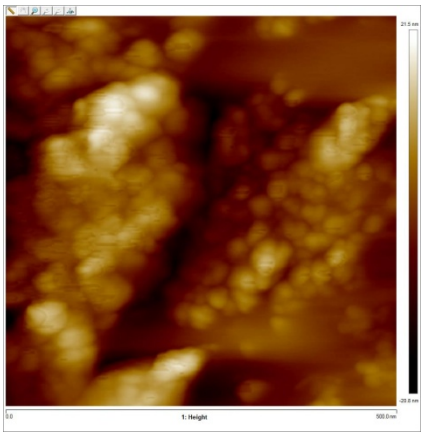

Image Z Range	37.3 nm
Image Surface Area	270298 nm²
Image Projected Surface Area	250000 nm²
Image Surface Area Difference	8.12 %
Image Rq	5.87 nm
Image Ra	4.56 nm
Image Rmax	37.3 nm

Figure S10. AFM topographic image of a film prepared by EPD (applied electric field: 10 V for 4 min).

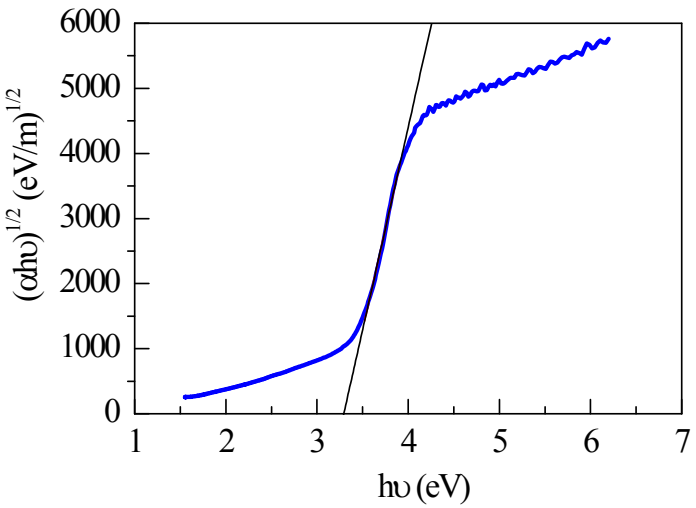

Figure S11. Tauc plot of a film prepared by EPD (applied electric field: 10 V for 7 min) from TiO_2 colloidal solutions (R= 0/5).