Electronic Supplementary Information

Synthesis of Highly Dispersible TiO_2 Nanoparticles and Their Application in Quantum Dot Light Emitting Diodes

Botao Hu, Mengxin Liu, Xinan Shi*, and Daocheng Pan*

State Key Laboratory of Featured Metal Materials and Life-cycle Safety for Composite Structures; Guangxi Key Laboratory of Processing for Non-ferrous Metals and Featured Materials; MOE Key Laboratory of New Processing Technology for Nonferrous Metals and Materials; School of Resources, Environment and Materials, Guangxi University, Nanning 530004, China

*E-mail: xashi@gxu.edu.cn and dcpan@gxu.edu.cn

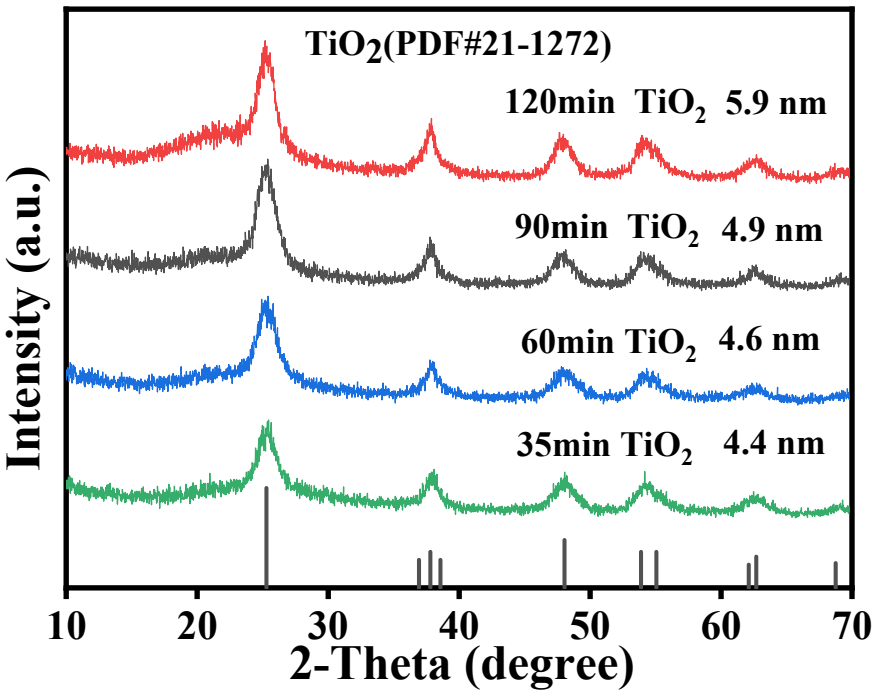

Figure S1. XRD patterns of TiO_2 nanoparticles synthesized at different reaction time.

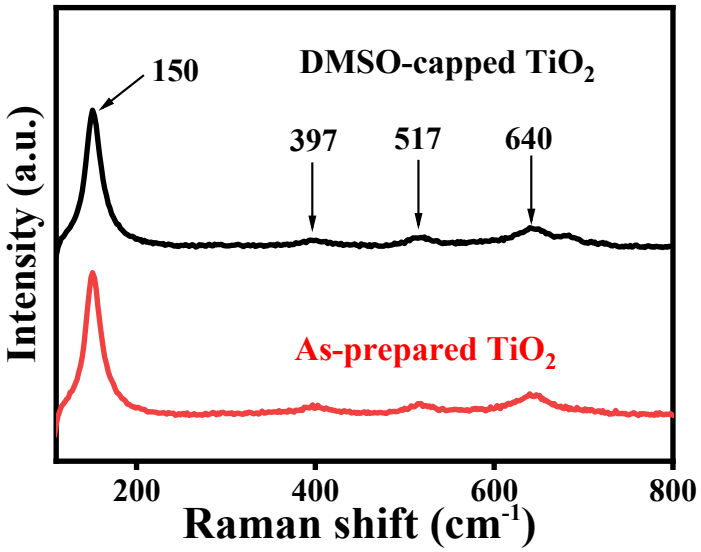

Figure S2. Raman spectra of as-prepared and DMSO-capped TiO_2 nanoparticles.

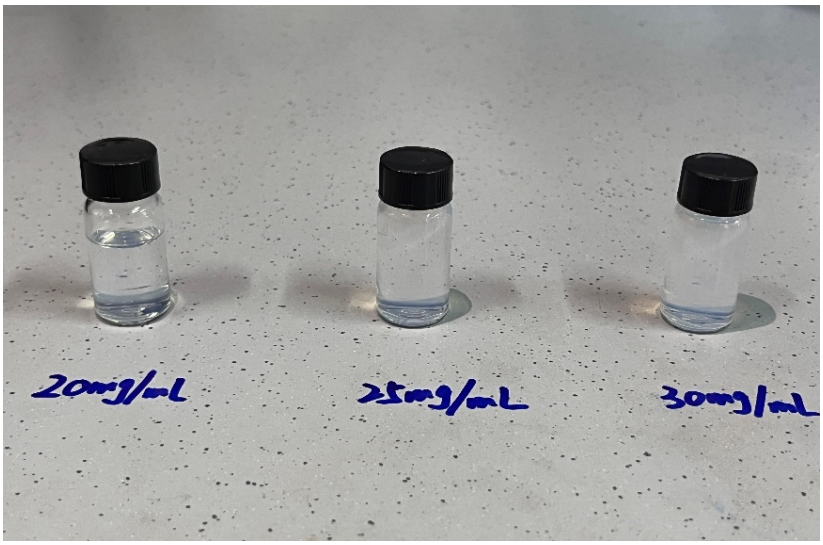

Figure S3. Digital photographs of TiO_2 nanoparticle solutions with different concentrations after DMSO post-treatment.

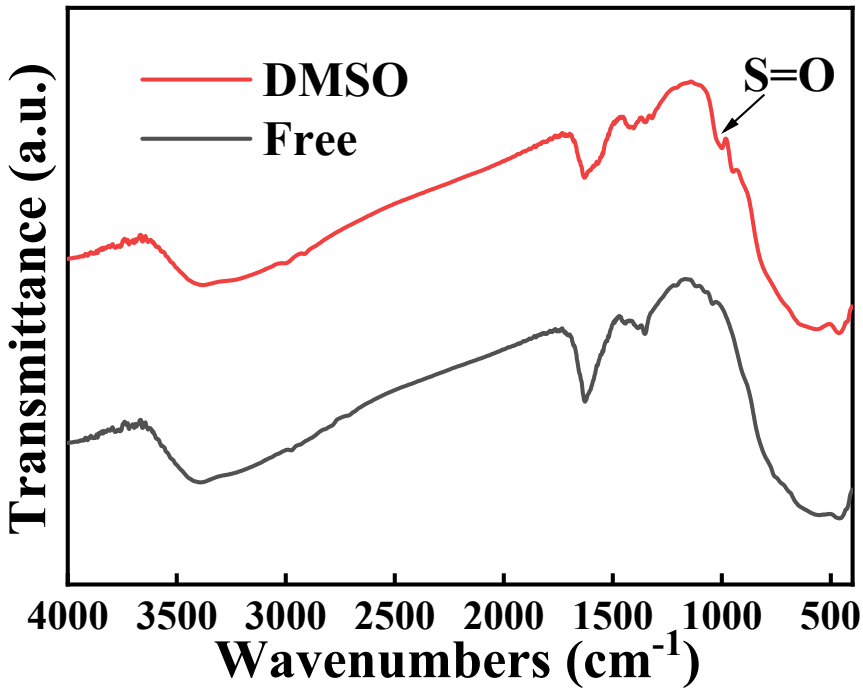

Figure S4. FT-IR spectra of TiO_2 nanoparticle with and without DMSO post-treatment.

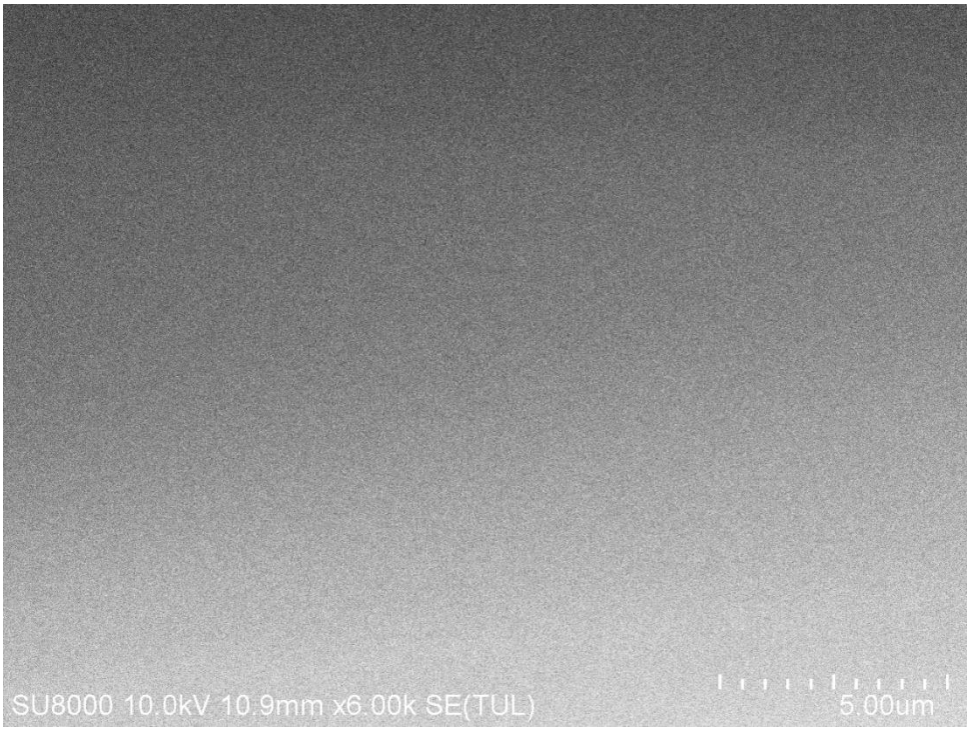

Figure S5. High-resolution SEM image of DMSO-capped TiO_2 nanoparticle thin film.

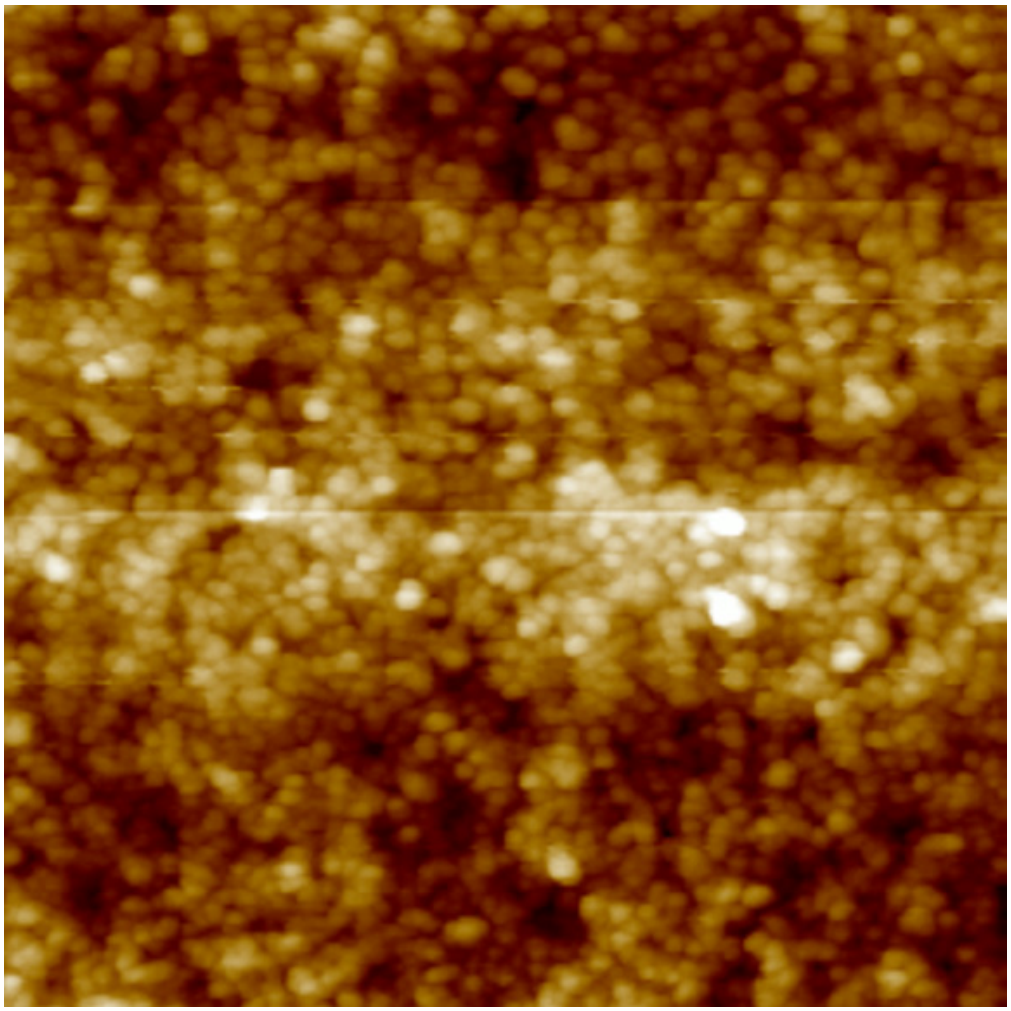

Figure S6. AFM image of DMSO-capped TiO_2 nanoparticle thin film.

Figure S7. Digital photograph of turbid solution of as-prepared and unmodified TiO_2 nanoparticles.

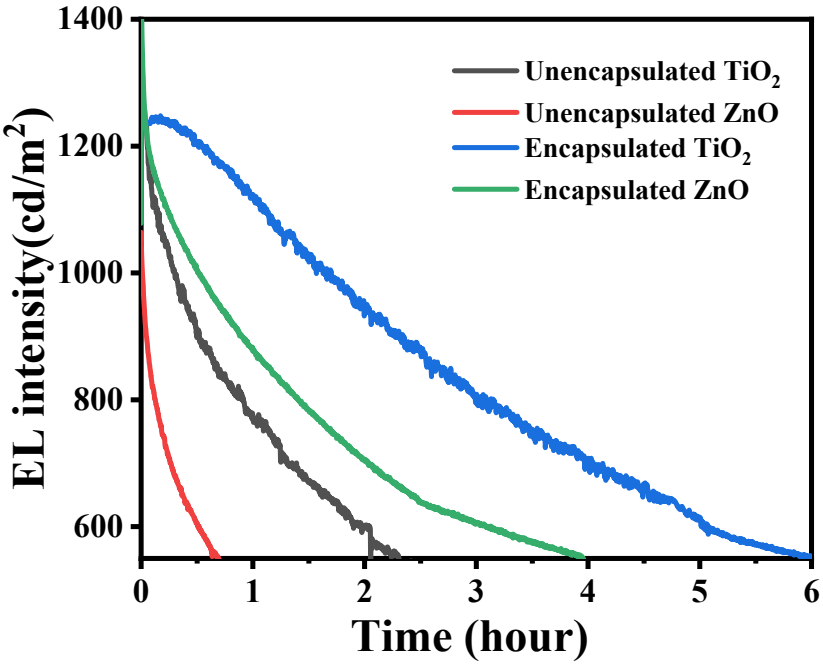

Figure S8. Comparison of the device lifetimes of encapsulated and unencapsulated TiO_2- and ZnO-based QLEDs.

Table S1. Summary of recent works on TiO_2-based QLEDs and one of the best ZnO-based QLED.

	Device structure	EQE (%)	Luminance (cd/m^2)	Ref.
ZnO	Ag/ZnO /QDs/TFB/PEDOT:PSS/ITO/Glass	21.81	250755.8	1
TiO_2	Al/TiO_2/QDs/TFB/PEDOT:PSS/ITO/Glass	/	12380	2
	Al/MoO_3/CBP/QDs/TiO_2/ITO/Glass	/	8802	3
	Al/MoO_3/CBP/QDs/Li-TiO_2/ITO/Glass	9.12	159840	4
	Al/MoO_3/CBP/QDs/Li-TiO_2/ITO/Glass	10.27	169790	5
	Al/MoO_3/CBP/QDs/TiO_2/ITO/Glass	12.03	103420	This work

References

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(2) K. S. Cho, E. K. Lee, W. J. Joo, E. Jang, T. Kim, S. J. Kwon, J. Y. Han, B. K. Kim, B. L. Choi, B. L. Choi and J. M. Kim, *Nat. Photonics*, 2009, **3**, 341-345.

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