

**Synthesis of monodispersed M-CeO₂/SiO₂ nanoparticles and formation of
hydrophobic UV absorption coating therefrom**

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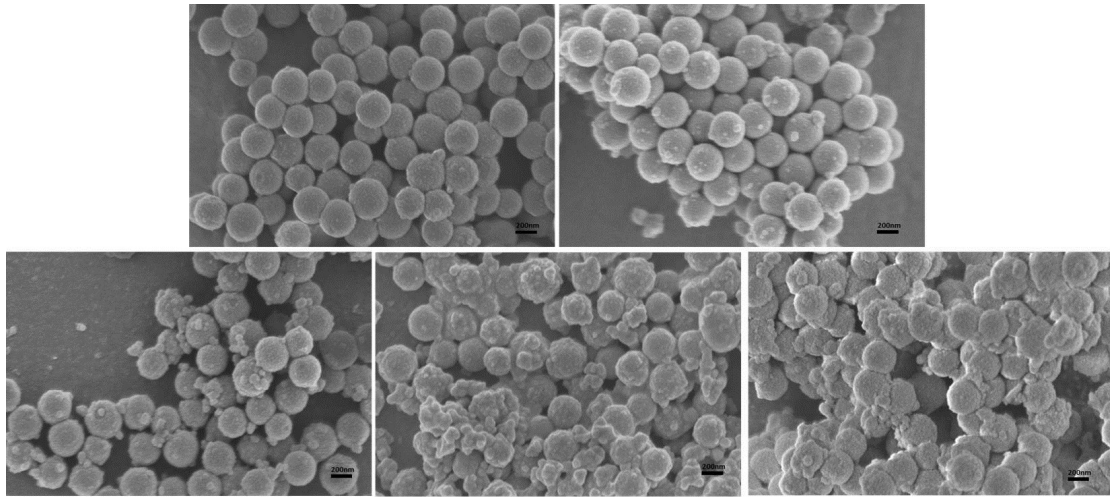


Fig. S1. SEM of $\text{CeO}_2@\text{SiO}_2$ nanoparticles with different $m(\text{Ce}(\text{NO}_3)_3 \cdot 6\text{H}_2\text{O})/m(\text{SiO}_2)$ ratio, (a) 1.5:1; (b) 2:1; (c) 2.5:1; (d) 3:1; (d) 4:1.

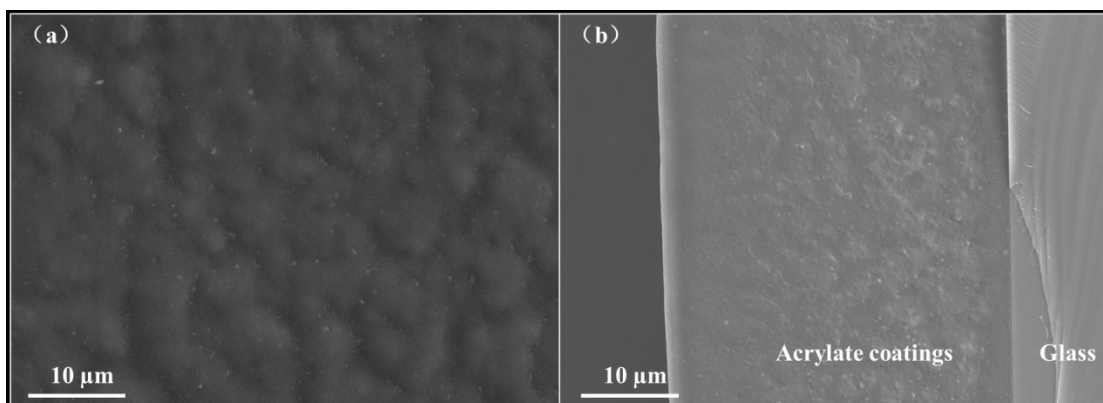


Fig. S2 (a) SEM image of PFA10, (b) a section view of PFA10. A large number of white nanoparticles can be seen uniformly distributed in the coating

Table S1 Elemental content of $\text{M-CeO}_2@\text{SiO}_2$ by EDS (atomic percentage)

Element	Area 1	Area 2	Area 3
Si	38.37	38.18	38.39
Ce	29.27	29.76	29.05
O	32.36	32.06	32.56

Table S1 shows the EDS of M-CeO₂@SiO₂, in which three measurements were made to ensure the accuracy of results. As shown in table S1, the average of atomic ratio of Si : Ce in M-CeO₂@SiO₂ is about 4.391. That means the mass fraction of CeO₂ in M-CeO₂@SiO₂ is approximately 39.5% according the formula below:

$$W(CeO_2) = \frac{M(CeO_2) \times 1}{M(CeO_2) \times 1 + M(SiO_2) \times 4.391}$$