

希土類酸化物結晶の配向 – 表面エネルギー – 濡れ性の関係

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Crystallographic orientation–surface energy–wetting property relationships of rare earth oxides

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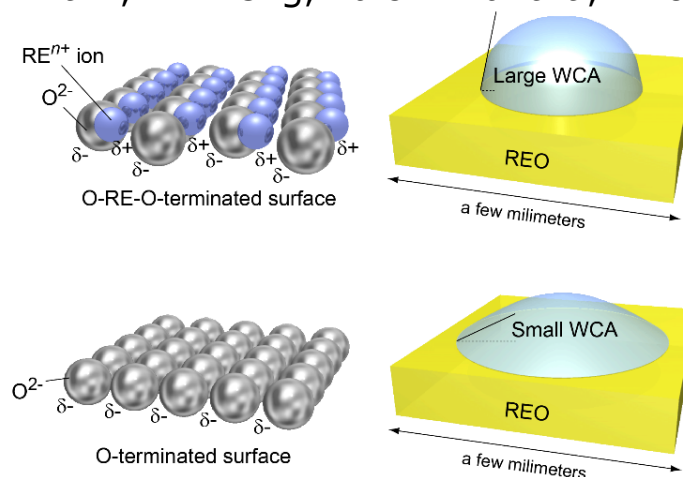


FIG. 1. Hypothesis: Atomic arrangement of REO crystal surfaces and macroscopic water droplets on REO crystal surfaces.

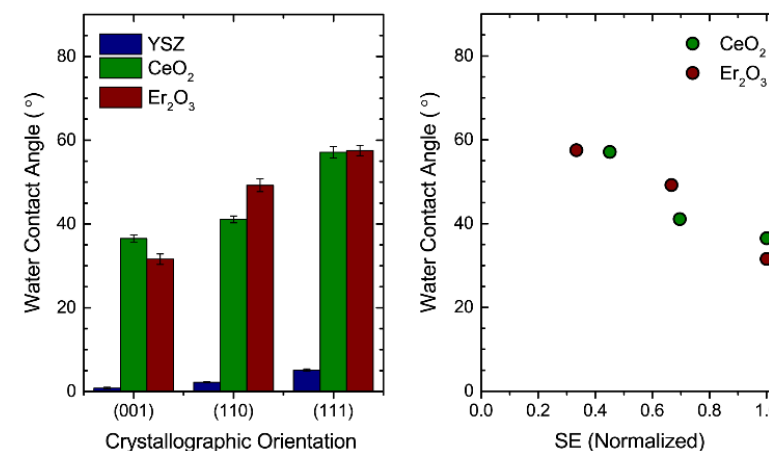


FIG. 2. (left) Water contact angle – crystallographic orientation relationships. (right) Dependence of water contact angle with surface energy (normalized).

結晶配向を制御した希土類酸化物のエピタキシャル薄膜の配向 – 表面エネルギー – 濡れ性の関係を調べた結果、それぞれに相関は見られたものの、基本的には親水性であることが分かった。2013年にMITのグループから報告された超疎水性は見られなかった。

We clarified the controversy on the wettability of rare earth oxide ceramics. These ceramics are hydrophilic (water spreads on the surface) and water repelling properties were only observed when the surfaces were contaminated by airborne hydrocarbon species. Effectively, the mechanism proposed in Nature Materials 2013 by the group of MIT is not correct.