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Battelle Number(s):

12864-E

Patent(s) Issued

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Quantum Dot Production Method

SUMMARY

This is a method of producing quantum dot materials involving deposition of a metal on an oxide substrate in an oxidizing environment to form metal oxide quantum dots on the surface of the substrate. The method produces quantum dots having a relatively high amount of spatial separation. This spatial separation slows the recombination of the electron hole pairs in the materials and increases their lifetimes. The electron-hole pairs in the materials formed by this method have been demonstrated to have exceptionally long lifetimes, improving their usefulness for photocatalysis and other applications. Typical deposition methods for forming the quantum dot materials included MBE and CVD, typical oxide substrates include SrTiO_3 and TiO_2 , and typical materials from which the dots are formed are Cu_2O and $\alpha\text{Fe}_2\text{O}_3$.



Patents & Intellectual Property

- » Patent #: 7,094,675

Technology Portfolio(s)

- » Materials Synthesis and Functionalization

Potential Industry Applications

- » Chemicals

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