



Quantum Dots Application in Coatings

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Message from the Guest Editors

Dear Colleagues,

Recent theoretical and experimental developments in quantum dots (QDs) as 0D materials have tremendous potential applications. QD coating is key to opening a wide variety of new applications. QDs, often described as artificial atoms, exhibit exceptional optical and electrical properties which have distinct advantages over traditional bulk materials. This has led to the growing interest in QD applications in coating.

The main topics include (but are not limited to):

- New approaches for QDs or functionalized QDs preparation for coating process, both physical and chemical;
- Theoretical approaches or simulations of new inorganic quantum dots;
- The growth mechanism of inorganic quantum dots by theoretical approaches;
- QDs surface coating for surface modification;
- QDs coating for perovskite solar cell or emerging solar cell applications;
- QDs coating for sensing applications including, but not limited to, gas sensors, photo detectors, magnetic sensors, thermal sensors, etc.;
- QD coating for surface-enhanced Raman scattering (SERS) applications or Förster resonance energy transfer (FRET) applications.

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Message from the Editorial Board

Now more than ever, research is asked to deliver knowledge and technologies to solve the major challenges faced by our society. The development of new materials and devices for (without the ambition to be exhaustive) energy, health and food technology, together with the need for establishing processes that reduce the impact on critical resources and the environment, is indeed in the spotlight of most contemporary research. Surface science and engineering play a key role in this regard, with an incredible potential in delivering new and deep scientific understanding and technical solutions essential to solve most of the major societal challenges.

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