

Abstract Submitted
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Are quantum dots spiky balls? JAMES SHEPHERD, NADAV GEVA, TROY VAN VOORHIS, Massachusetts Institute of Technology — We here propose an alternative view to the spiky ball picture of passivated quantum dots. By studying the realistic surface morphology of a dot using atomistic molecular dynamics simulations, paying particular attention to the ligand structure, we find that the ligand shell thickness is substantially reduced by van der Waals packing. This affects the ability of the dot ligands to interdigitate. This is discussed in terms of the available experimental data for the superstructure of quantum dot layers, and related back to the electronic properties of quantum dots.

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