Patent Search

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Abstract:

THE ROLE OF CASIMIR AND VAN DER WAALS FORCES IN NANOPARTICLE SELF-ASSEMBLY AT SMALL SCALES ABSTRACT The invention mentioned appears to be addres importance of Casimir–van der Waals forces in the self-assembly processes of nano particles, particularly non-spherical ones. Let me break down the key points from you provided. These are attractive forces that exist between neutral atoms and molecules due to temporary fluctuations in their electron distributions. These forces p significant role in the interactions between nano particles. This approach combines the Lifshitz theory of Casimir–van der Waals interactions with corrections that acc specific shapes of the nano particles. This invention is a theoretical framework used to describe the electromagnetic interactions between objects in close proximity, t nano scale distances. It takes into account the dielectric properties of materials and their geometrical shapes when predicting these interactions. The invention menti "usual Hamaker approach" is used for estimating the magnitude of the Casimir–van der Waals interactions. The Hamaker constant is often employed to quantify thes interactions between particles, but it appears that the authors argue that this approach may not be accurate for non-spherical nano particles. Overall, the invention e more accurate approach for predicting Casimir–van der Waals interactions in the context of self-assembly processes involving non-spherical nano particles, highlighti traditional Hamaker approach may not be sufficient for such cases. This invention is valuable for understanding and manipulating the behavior of nano particles in va applications, including materials science and nanotechnology.

Complete Specification

Description:FORM 2
THE PATENTS ACT,1970
(39 of 1970)
&
THE PATENT RULES, 2003
Complete Specification
(See section10 and rule13)
1. Title of the Invention: THE ROLE OF CASIMIR AND VAN DER WAALS FORCES IN NANOPARTICLE SELF-ASSEMBLY AT SMALL SCALES
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