

076 Traceable Size and shape measurement of Nanoparticles

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ABSTRACT

Nanoparticles are particulates with a maximum dimension of less than 100nm. Due to their size they act as a bridge between the atomic and macroscopic scales. This means they have unique properties that can be exploited commercially. For example as highly concentrated suspensions, components for nanocomposites and drug delivery agents. The properties of nanoparticles are highly dependant on their size. In order to ensure consistent quality and innovation in this field and across research groups it is important to have recognised sizing methods and reference materials in place. Unfortunately no such procedures exist, indeed currently available techniques provide different and sometimes conflicting information. Here we present our results in sizing gold nanoparticles using several complementary techniques; transmission electron microscopy, atomic force microscopy and dynamic light scattering. The difference between each technique and the role of sample preparation will be discussed. Finally we will describe our efforts and plans to provide a calibrated method for the sizing of nanoparticles.