The Gold Particles

Light scattering techniques are widely used for determination of metal nanoparticle size. Metal nanoparticles are finding increasing application in the preparation of new nanocrystalline materials, with metal oxide composites being used to confer new electronic, magnetic, and optical properties into material structures. Often these materials are formulated and processed as slurries or aqueous suspensions. Particle size can be determined by measuring the random changes in the intensity of light scattered from a suspension or solution. This technique is commonly known as dynamic light scattering, but is also called photon correlation spectroscopy and quasi-elastic light scattering. The latter terms are more common, and examples of light scattering technique applications include determining nanogold size, protein size, latex size, and colloid size. In general, the method is best used for submicron particles and can be used to measure particles with sizes less than a nanometer. Gold nanoparticles' interaction with light is strongly dictated by their environment, size, and physical dimensions. Oscillating electric fields of a light ray propagating near a colloidal nanoparticle interact with the free electrons causing a concerted oscillation of electron charge that is in resonance with the frequency of visible light. Gold nanoparticle is one of the most widely used nanomaterials for academic research and an integral component in point-of-care medical devices and industrial products worldwide.

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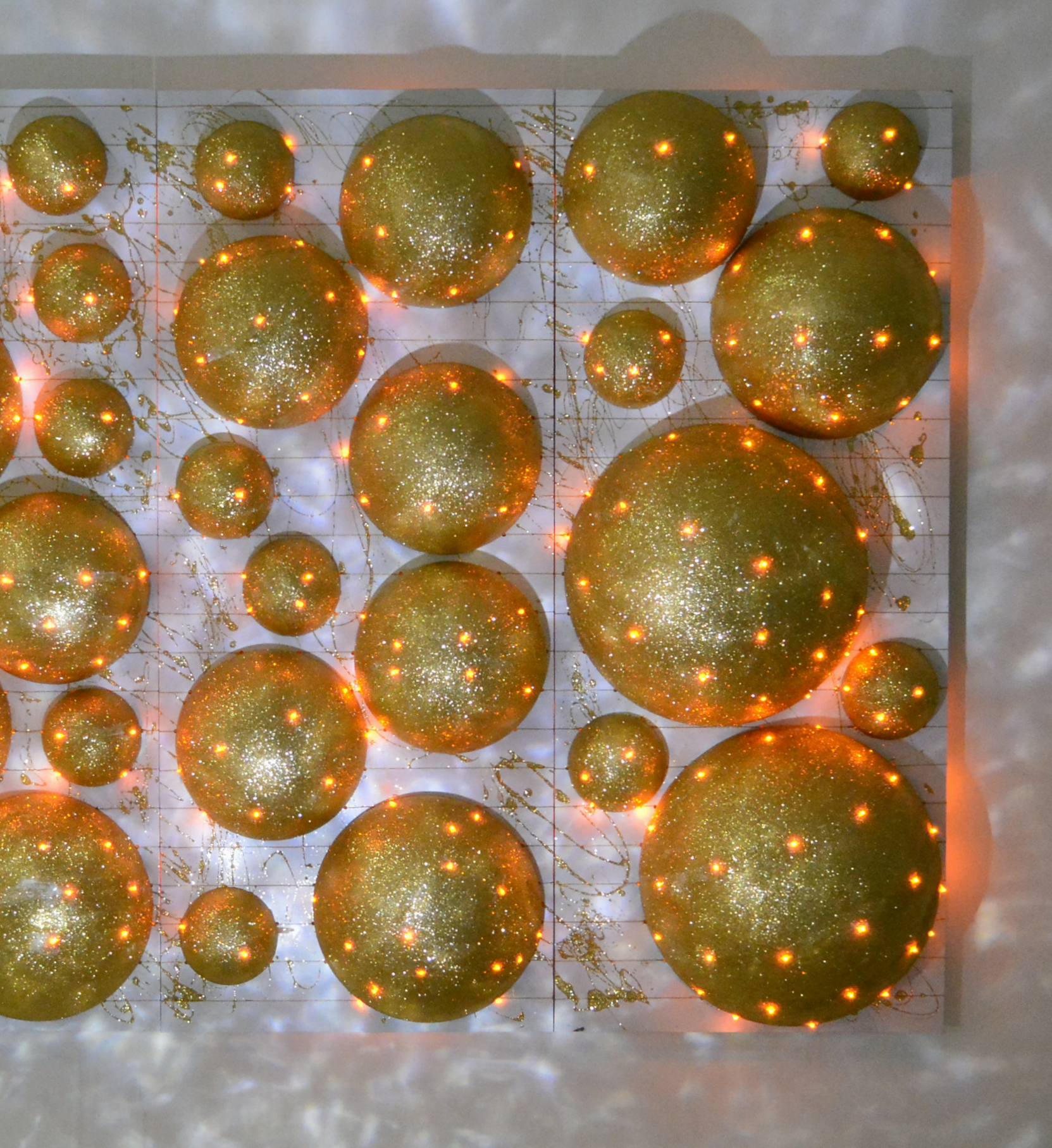


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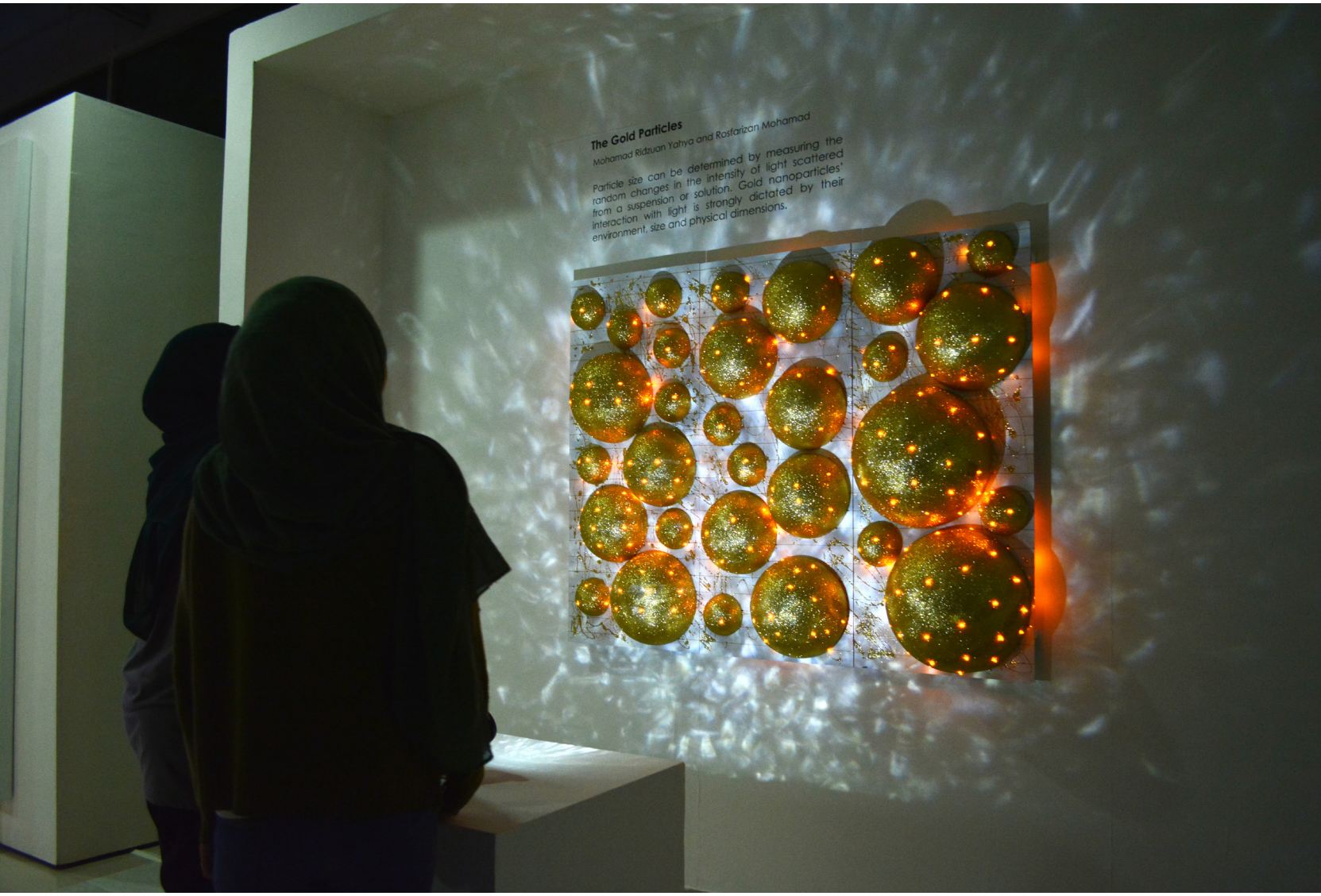
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