

## Optical Properties of Highly Concentrated Colloidal Suspension with Silica/Quantum dots/Silica Hybrid Particles

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Quantum dots (QDs) have been widely studied in many fields because of their unique properties such as wide absorbance range, narrow fluorescence wavelength, and size-dependent emission. Quantum yield (QY) is an important parameter to determine optical properties of fluorescent particles. In QD suspension, QY can be affected by Förster resonance energy transfer (FRET) and inner-filter effect. Even though there are many studies on fluorescence quenching of QDs in dilute colloidal suspensions, few studies are available on the change in QY of QDs in highly concentrated colloidal suspension. To study the change in QY of QD suspension in different conditions, we synthesized silica/quantum dots/silica (SQS) hybrid particles. We studied the change in QY of SQS suspension by changing SQS particle concentration and salt concentration. Based on these results, we could also determine dispersion states of highly concentrated colloidal suspension. We believe that these results can be applied to the systems such as ink and chemical mechanical polishing (CMP) slurry for determination of their dispersion states.