

Abstract Submitted  
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**Investigation of the Photophysical Properties of (CdSe)ZnS Quantum Dots and Their Use as a Fluorescent Tracer for Thermofluid Diagnostics**<sup>1</sup> HUI HU, Depart. of Aerospace Engineering, Iowas State University, MANOOCHHR KOOCHEFAHANI, BEHSHAD SHAFII, Dept. of Mechanical Engineering, Michigan State University, PRESTON SNEE, MOUNGI BAWENDI, DANIEL NOCERA, Dept. of Chemistry, Massachusetts Institute of Technology — Chemically synthesized semiconductor quantum dot (QD) nanoparticles can offer certain advantages for fluorescence imaging compared to other commonly-used dyes such as Fluorescein and Rhodamine B. The photophysical properties of (CdSe)ZnS QDs are presented in terms of their absorption and emission spectra, stability against photobleaching and temperature sensitivity under laser excitations at the wavelengths of 308nm, 488nm and 514.5nm. The application of QDs for thermal-fluid diagnostics is demonstrated by using them as fluorescent tracers to conduct flow visualization and concentration measurement in a pulsed jet flow, and temperature distribution mapping in a stratified flow.

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