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**Luminescence of colloidal CdSe/ZnS nanoparticles as a probe of solvent state** ANDREY ANTIPOV, ANDREI SERGEEV, VLADIMIR MITIN, MARK SWIHART, University at Buffalo, ALEXANDR VEREVKIN, Rutgers University — We demonstrate the sensitivity of colloidal CdSe/ZnS nanoparticles (NPs) photoluminescence (PL) intensity and wavelength to the solvent state. Several dramatic changes in PL are observed near solvent phase transitions, such as pronounced changes in PL peak energy and PL line width. For instance, a shift in the PL peak energy of up to  $\sim 25$  meV is observed for particles dispersed in water near the freezing point  $T=273$  K. We attribute this anomalous temperature dependence of the PL to kinetic and thermal effects in nanoparticles as well as in the solvent. In the last case, the photoluminescence probe allows one to track even small changes in the solvent state.

Andrey Antipov  
University at Buffalo

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