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Quantum Dots in Liquid Scintillator

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Quantum dots are semiconducting crystals with dimensions on the order of nanometers. Due to quantum confinement, their size gives rise to optical properties that resemble those of single atoms, rather than bulk material. One of these is their absorption of light shorter than a characteristic wavelength and reemission in a narrow peak around that wavelength. This unique photoluminescence makes quantum dots ideal wavelength shifters. Moreover, their chemistry provides a straightforward method to suspend heavy elements in organic scintillators. The NuDot collaboration has been pursuing a variety of new quantum dots, and a review of the current results will be presented.