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**Control over density of submonolayer type-II ZnTe/ZnSe quantum dots grown via migration enhanced epitaxy**[1] SIDDHARTH DHOMKAR, HAOJIE JI, BIDISHA ROY, IGOR L. KUSKOVSKY, The Graduate Center and Queens College of CUNY, ALICE WANG, Evans Analytical Group, MARIA C. TAMARGO, The Graduate Center and the City College of CUNY — For practical applications of self-assembled semiconductor quantum dots (QDs), it is important to control their density, distribution and size; parameters that remain essentially elusive in case of submonolayer QDs. Such QDs grown via migration enhanced epitaxy (MEE), form without the formation of wetting layers, an advantageous feature for practical applications. Here we present a study of submonolayer type-II ZnTe/ZnSe QDs by combining a series of characterization tools, to obtain precise estimates of the dot densities, and their size. Type-II ZnTe/ZnSe QDs are particularly interesting because of their relatively large valence and conduction band offsets which can be utilized to tune optical and electrical properties in unique ways. Specifically, we have employed low temperature photoluminescence to estimate QD thicknesses while QD radius has been accurately determined via excitonic Aharonov-Bohm effect. Secondary ion mass spectroscopy has been employed to obtain average Te concentration, which was used to calculate QD density. The results demonstrate that the QD density can be controlled relatively precisely by varying Te flux and number of MEE Te cycles.

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Siddharth Dhomkar
The Graduate Center and Queens College of CUNY

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