



**College of Liberal Arts and Sciences**  
**Fall 2021 Chemistry Seminar Series**  
**Friday, November 5<sup>th</sup>**

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**Quantum Dots as Narrow Bands Emitters in Solid State Lighting**

**Abstract:**

Quantum dots (QDs) are semiconductor nanocrystals with size and composition dependent absorption and emission spectra. Their large absorption coefficients, narrow emission linewidth, and high photoluminescence quantum yields make them attractive alternatives to traditional phosphors used in light emitting devices (LEDs). Traditional QDs were unable to withstand the harsh environment of on-chip LED applications. A Portland startup set out to change that, and after 9 years of improving stability, the team joined a global LED company and QDs were employed on-chip for the first time. In this talk we will review some of the history behind our group, learn how QDs make high color quality LEDs more efficient, and discuss future applications of QDs in human centric lighting.

**Bio:** Bob Fitzmorris grew up in Aloha, Oregon, has a B.S. in chemistry from Pacific University, and a PhD from UC Santa Cruz. As a post doc at OSU, Bob collaborated with Pacific Light Technologies (PLT) to make QDs using continuous flow microwave reactors. He later joined PLT as a research scientist before they became part of OSRAM Opto Semiconductors.