

Light- and Light-Based Technology

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Nature offers us a full assortment of atoms, but Quantum engineering is required to put them together in an elegant way to realize functional structures not found in nature.

A particular rich playground for Quantum era, is the so-called III-V semiconductors, made of atoms from columns III and V of the periodic table, and constituting compounds with many useful optical and electronic properties. Guided by highly accurate simulations of the electronic structure, modern semiconductor quantum devices are literally made atom by atom using advanced growth technology to combine these materials in ways to give them new properties that neither material has on its own. Modern mastery of atomic engineering allows high-power and highly efficient functional devices to be made, such as those that convert electrical energy into coherent light or detect light of any wavelength and convert it into an electrical signal.

This talk will present the future trends and latest world-class research breakthroughs that have brought semiconductor quantum engineering to an unprecedented level, creating IR light detectors and emitters over an extremely wide spectral range from 0.2 to 300 microns. As well as their integration with Si photonics.

2-Video of Virtual visit CQD

<https://www.youtube.com/watch?v=0cB6EqNyAN8>