

# Vision spectra

## WEBINARS

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### **SWIR Colloidal Quantum Dot Sensor Bandwidth and Thermal Stability: Progress and Outlook**

**Tuesday, September 20, 2022 1:00 PM - 2:00 PM EDT**

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#### .: About This Webinar

Shortwave infrared (SWIR) sensors, made using colloidal quantum dot (CQD) photodiodes, offer CMOS-like opportunities for highly scalable, small pixel pitch sensors. This is due to SWIR sensors' straightforward, monolithic integration with silicon circuitry. Opportunities for this detector technology can be found in the need for new sensor technologies in the development of systems for consumer and automotive applications. To realize this potential, this relatively new detector system must also be shown to meet thermal and environmental conditions that are found in consumer and automotive devices.

Ethan Klem, Ph.D. provides an overview of the performance of high-definition CQD sensors and shows the less than 3-ns rise and fall time found by testing the response time of the photodiode structure using a pulsed laser source. He also presents data that demonstrates stable device operation at elevated temperature and humidity conditions.

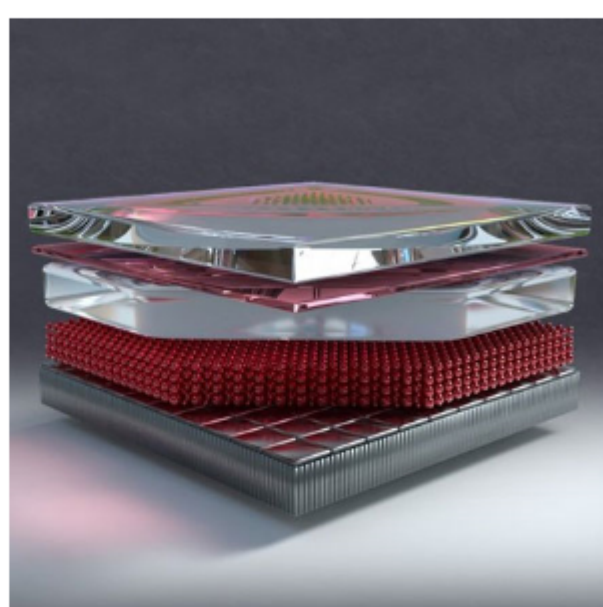
#### **Who should attend:**

Researchers and engineers who work with SWIR sensors and systems. Those who are interested in colloidal quantum dot sensors and their capabilities. Consultants and manufacturers who utilize imaging, sensors, cameras, test and measurement, and quality control in many different industries.

#### **About the presenter:**

Ethan Klem, Ph.D., is co-founder and CTO at SWIR Vision Systems. He received his doctorate in electrical and computer engineering, where his work with colloidal quantum dots (CQDs) led to the world's first demonstration of an infrared photovoltaic effect from lead sulfur (PbS) CQDs. He has over 17 years of experience developing quantum dot-based optoelectronic devices. From 2008 to 2018 he worked as a senior research scientist at RTI International, a North Carolina-based research institute. There he worked on a variety of technology development projects for federal and private funding agencies. His work at RTI ranged from developing CQD solar cells and camera sensors to waste treatment systems for off-grid sanitation solutions. During this time, he also served as an adjunct professor on the faculty of Duke University's School of Electronic and Electrical Engineering.

In 2018 he left RTI to co-found SWIR Vision Systems. There his focus is on commercializing and accelerating the development of the technology for high-volume markets. He has authored or co-authored 24 peer-reviewed journal publications, 25 issued patents, 4 pending patent applications, and 18 conference presentations and proceedings. His work has appeared in journals such as *Nature*, *Nature Materials*, and *Advanced Materials*.



#### .: Mark Your Calendar

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