

“Attaching Gold Nanoparticles to Polymer Coated SiO₂ Chips”

During the summer of 2011, I was lucky enough to take part in the RET program at Boston University. Prior to starting the program I was very hesitant. I had minimal experience with physics and I knew I would be pushed well beyond my comfort zone. Pushed beyond my comfort zone turned out to be an understatement. During my six weeks in the program I was immersed in the fields of physics and chemistry, as they apply to Biophotonics, and I learned many of the current issues connected to the field.

For the research portion of my experience I was assigned to professor Ünlü's lab at the Biophotonics center where I worked with the new IRIS technology and its applications in virus detection. My partner and I used the affinity between antigens and antibodies to bond simulated viruses (gold nano-beads) to a SiO₂ substrate. We were then able to quantify the adhesion of the nano-beads with IRIS.

This IRIS technology has many long-term humanitarian applications. Because Iris runs on very little power, and is relatively inexpensive and portable, it has great promise for medical use in remote parts of the world. Its ability to identify specific viruses within a blood sample will change the way field medicine is conducted worldwide, not just in the developed nations.

The entire project was a wonderful experience that left me with a level of excitement for biophotonics that I could not help but share with all of the students and staff in my school. As part of the RET program I was able to develop a communications module for my class that will allow my students a hands-on experience with smart lighting and some of the ways it impacts our daily lives without our knowing. In the curriculum module the students build a model telegraph to transmit messages. The students will progress up to communicating through student created free-space laser communicators and fiber-optic communicators.

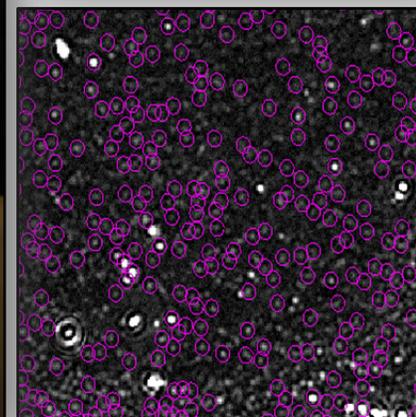
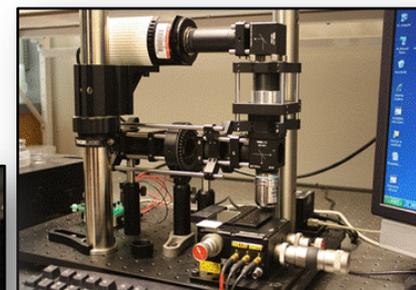
Thank you for providing this wonderful opportunity.

Jared R. Quinn

Overlook Middle School

Ashburnham-Westminster Regional School District

Boston University
Professor, M. Selim Ünlü and
Research Professor, Carlos Lopez



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