Environmental Sensors from Mixed Gold and Silica Nanoparticle Crystalline Arrays

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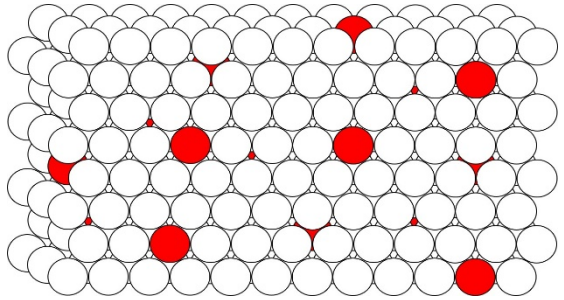
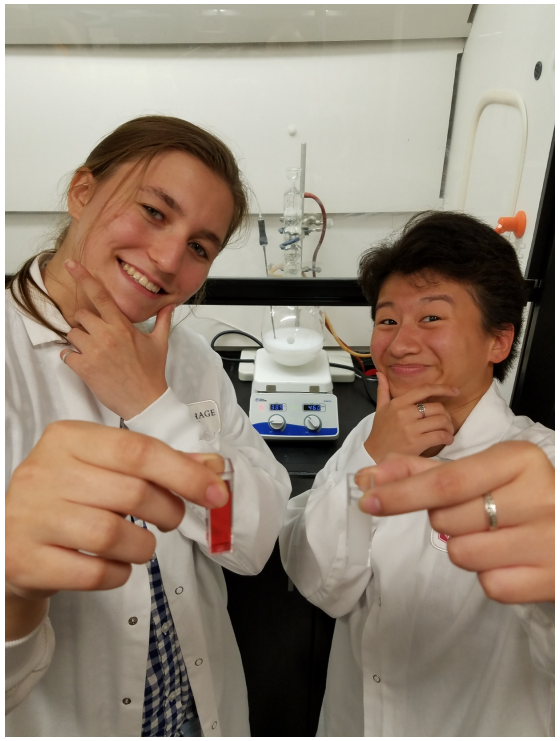
Materials made from very small particles behave very differently compared to bulk materials. Gold nanoparticles have a bright red color that changes when molecules come close to their surface. We are building a sensor to detect environmental contaminants that uses this property of gold nanoparticles. We also use the filtering capability of silica nanoparticles arranged in a well-ordered crystal. The small pores of the crystal only allow molecules of a certain size through to the sensing surface of the gold nanoparticles.





Yana Astter (’21, left) and Grace Kozisek (’20, right) worked on this project with Professor John Kirk during the summer of 2018. Yana is studying Chemistry and plans to attend medical school after graduation. Grace is studying Chemistry and Chinese with a minor in Dance.