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| **Student** | **Advisor** | **Poster Title, Abstract & Student Bio** |
| Breanna Arellano | Dr. Erik Sapper | Title: Inherently Antimicrobial Polymers and CoatingsAbstract: Just like humans communicate with each other using speech, bacteria can also communicate with each other via molecular signals. Once anchored to a surface, bacteria will proceed to excrete biological macromolecules such as DNA, proteins, and polysaccharides into the surrounding environment, initiating biofilm formation, which leads to biocontamination on many coated surfaces. At the same time, bacteria anchored to the surface communicate with other bacteria to help aide in the production of biofilms. These biofilms subsequently act as a barrier to protect surface-resident bacteria from antibiotics and disinfectants. The presence and growth of bacteria within and around the biofilm can be detrimental to a person’s health, and can also degrade industrial and medical equipment through microbiologically influenced corrosion and polymer degradation. Currently, the solution is to coat surfaces with coatings containing biocidal additives, but these are known to have toxic effects on human health and the environment once they are removed from the coating through leaching mechanisms. The goal of this research is to covalently integrate biocides into the polymer resins used in coatings. By incorporating the biocide into the polymer, coatings can reduce biofilm and bacterial growth without leach-related toxicological effects. Bio: Breanna Arellano is a junior chemistry major from Los Angeles. She attended California Academy of Math and Science (CAMS) and graduated in 2015. Some of her accomplishments are being a first generation student, an American Chemical Society Secretary (2017-2018) and an undergraduate researcher. Her hobbies are drawing, reading, and playing the saxophone |