Abstract Submitted
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Synthesis of Gold Nanoparticles Using Microfluidic Mixers[1] BENJAMIN BOSELA, ALEXA ROBERTS, None, CHANDRA KOTHAPALLI, PETRU FODOR, Cleveland State University — Microfluidic devices can be used to perform multiple chemical reactions on a small scale. Some benefits of microfluidic reactions over batch reactions include greater portability, more accurate data, quicker reactions, precise verification of temperature, and more cost-effective experiments. Microfluidic mixers can be used to synthesize gold nanoparticles by mixing gold chloride and sodium citrate. Previously, the optimal set of mixing conditions was concluded for a reverse staggered-herringbone mixer. Currently, four different mixers were put in place and tested using the same conditions for each mixer. After collecting samples from the outlet tubes of the mixers, sample preparation was performed and the samples were analyzed using SEM. Particle sizes were measured and quantified during imaging. Particle size distributions were constructed and results for each mixer were compared to comprehend the effectiveness and ability of the different devices. Future work will entail testing different flow rates, temperatures, and pH levels to see how they effect particle sizes in these four mixers

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