

Abstract Submitted
for the TSF21 Meeting of
The American Physical Society

Synthesis and Characterization of Thin Films PAOLA TORRES, KYLEE SHANKS, NEREIDA MARTINEZ, ANDRA PETREAN, Physics Department, Austin College, MARTIN REYES-BANDA, MANUEL QUEVEDO-LOPEZ, Department of Materials Science and Engineering, University of Texas at Dallas — Au in its bulk form is useful for many electronic applications because it is a good electrical and thermal conductor; however, at nanoscale, gold's properties change. For example as Au gets thinner its density decreases, it absorbs green light and appears red, and becomes less electrically conductive. Some of these characteristics make it a good candidate for developing optical biosensors. The purpose of this research is to synthesize and characterize nanoscale Au films at varying thicknesses, for future use in developing biosensors. The Au thin films were synthesized using a SPI-Module sputter coater and were characterized through atomic force microscopy, X-ray photoelectron spectroscopy, optical absorbance, and Hall effect measurement system. Our results showed that after annealing, the Au thin films presented a peak in absorbance. A shift in this peak when introduced to biological mediums could be utilized as a sensor.

Andra Petrean
Physics Department, Austin College

Date submitted: 24 Sep 2021

Electronic form version 1.4