Abstract Submitted
for the SES21 Meeting of
The American Physical Society

Building a Manipulatable Sputter Coating System as a Means to Controlling Sn Whiskers[1] JAMES ARMSTRONG, CHAD RODEKOHR, Presbyterian College — As technology advances the need to lessen Sn Whisker growth has become vital. With modern guidelines about Pb in electronics short-circuiting due to spontaneous whisker growth is a concern. The growth of whiskers is believed to come from internal stress in Sn films. Our main goal is to study the growth of Sn Whiskers to understand the stress within the Sn and how whisker growth may be reduced or guided. To study Sn whisker growth, we seek to build an internal Sn whisker sample production facility. A key component to this facility is to alter an existing sputter coater to meet the requirements to sputter thin layers of Sn onto samples for study. It is necessary to be able to adjust the voltage within the vacuum chamber to ionize Ar at lower pressures and to decrease the pressure within the vacuum chamber to less than 10 mTorr and a pressure gauge to measure the pressure. We have included a voltage adjuster, improved the cooling within the sputter coater, gained new pumps, and an apparatus to attach a pressure gauge. With these changes, we will produce Sn Whisker samples and study the effects of varying pressures. Through studying whisker samples, we will be able to understand their growth, reduce short-circuiting due to whiskers, and develop new technologies using whisker growth.

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Date submitted: 30 Sep 2021 Electronic form version 1.4