Abstract Submitted
for the TSF21 Meeting of
The American Physical Society

Fabrication of Porous Silicon Thin Films and Characterization by Photoluminescence[1] ADDISON HILD, TONI SAUNCY, Texas Lutheran University — Several porous silicon (p-Si) samples were fabricated using anodic etching techniques to investigate the role of crystal growth direction and the impact of including a strong oxidizer in the etching solution. A set of n-type and p-type samples with two different crystal growth axes (<100>and <111>) were etched in a solution of either 40% aqueous hydrofluoric acid (HF) or a solution of HF with Cobalt Nitrate (Co(NO3)2). All samples exhibited the optical discoloration associated with the formation of the thin film structure on the surface of the crystalline silicon substrates. Samples were characterized using standard optical microscopy and a low-resolution photoluminescence system. Evidence of the porous silicon structure was found in the photoluminescence emission in the red (600-700nm) range of the visible spectrum.

[1]This work is supported by NSF IUSE:HSI Grant 1953561

Toni Sauncy
Texas Lutheran University

Date submitted: 24 Sep 2021 Electronic form version 1.4