Abstract Submitted
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The effects of oxidizing agents in non-contact synthesis of porous silicon[1] LAUREN BENNETT, Angelo State University Department of Physics, JOE VELASQUEZ, III, Angelo State University Department of Chemistry, TONI SAUNCY, Angelo State University Department of Physics — A variety of different oxidizing agents have been studied for their ability to aid in the synthesis of porous silicon by noncontact photo-etching in a 40% HF solution. A single substrate, n-type Sb-doped silicon was used as the base material. The single crystal was cleaved into 1cm^2 pieces, which were then processed with a series of different oxidizing agents. The oxidizing agents were selected based upon potential H+ contribution during the etching reaction process. The resulting thin film regions on each sample were characterized using Raman spectroscopy to investigate crystallite size, photoluminescence spectroscopy to confirm light emission from the thin films and surface resistivity, with film thickness determines by spectroscopic ellipsometry measurements. A large range of pore size and structure was achieved, ranging from the nano- to the mesoporous regime.

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