Supporting information

PbTe Nanowires Electrochemically Deposited on Si Substrates as PbTe/Si Heterojunction Infrared Photodetectors

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The results of etching Si/SiO$_2$ wafers using different etching times are shown in Fig.S1. When the etching time was 5 minutes, the Si hole depth was only 0.36 $\mu$m, and after 20 minutes of etching, the Si hole depth reached 1.78 $\mu$m. Observing the morphology of Si holes after 20 minutes of etching, it can be seen that the surface of Si holes is rough and uneven. The roughness of the Si hole surface measured by a white light interferometer was 0.363 $\mu$m. As a result, all of the Si hole etching times mentioned subsequently in this study are 20 minutes.