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**** WITHDRAWN ** Photocarrier Dynamics in Si and SiGe Nanowires Studied Using Optical-Pump Terahertz-Probe Measurements**

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CONTENT

For this work, Si and SiGe nanowires (NWs) were grown in a hot-wall reduced pressure chemical vapor deposition system via the vapor-liquid-solid mechanism on both silicon and sapphire substrates using gold as a catalyst. These NW samples were characterized using optical-pump terahertz-probe (OPTP) transmission experiments. The influence of the experimental conditions on the photocarrier dynamics has been investigated by studying the impact of the substrate, the Ge content, the excitation wavelength, the pump fluence and the sample temperature on the time-resolved photoconductivity measurements. In all cases, the data curves show a rapid rise of the OPTP signal followed by a bi-exponential decay behavior with an initial decay time of ~ 6 ps and a longer decay time of few tens of picoseconds up to 140 ps. Our results show that the capture and recombination of photocarriers by the traps present on the surface of the NWs play an important role in the observed photoconductivity dynamics.

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